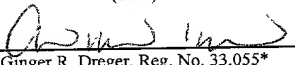


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | | | |
|-----------|---|------------------|---|--|
| Applicant | : | Stanton et al. |) | Group Art Unit Unknown |
| | | |) | |
| Appl. No. | : | Unknown |) | I hereby certify that this correspondence and all |
| | | |) | marked attachments are being deposited with |
| Filed | : | Herewith |) | the United States Postal Service as first-class |
| | | |) | mail in an envelope addressed to: Assistant |
| For | : | SECRETED FACTORS |) | Commissioner for Patents, Washington, D.C. |
| | | |) | 20231, on |
| | | |) | <u>March 14, 2001</u> |
| | | |) | (Date) |
| Examiner | : | Unknown |) |  |
| | | |) | Ginger R. Dreger, Reg. No. 33,055* |

SEQUENCE SUBMISSION STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

A copy of the Sequence Listing in computer readable form as required by 37 C.F.R. §1.821(e) is submitted herewith.

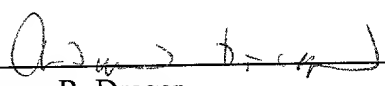
As required by 37 C.F.R. §1.82(e), the data on the enclosed disk is identical to the Sequence Listing in the application filed herewith.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 14, 2001

By: 
Ginger R. Dreger
Registration No. 33,055
Attorney of Record
620 Newport Center Drive
Sixteenth Floor
Newport Beach, CA 92660
(415) 954-4114

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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 cccactgtcc ccgccacaca ttaaacttga tctctctaca cagacgcact cggagcagag 180
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 His Ser Arg Leu Arg His Arg His Thr Asp Arg *
 1 5 10

tgc cgc ccc gac cga cgg cca gcc cca gac aca acc ttc tga aaa cac 278
Cys Arg Pro Asp Arg Arg Pro Ala Pro Asp Thr Thr Phe * Lys His
15 20 25

aga aaa caa gtc cca gcc caa gcg gct gca tgt gtc caa cat ccc ctt 326
Arg Lys Gln Val Pro Ala Gln Ala Ala Cys Val Gln His Pro Leu
30 35 40

ccg gtt ccg gga tcc aga cct ccg aca aat gtt tgg cca att tgg taa 374
Pro Val Pro Gly Ser Arg Pro Pro Thr Asn Val Trp Pro Ile Trp *
45 50 55

aat att aga tgt tga aat tat ttt taa tga gcg ggg ctc gaa ggg att 422
Asn Ile Arg Cys * Asn Tyr Phe * * Ala Gly Leu Glu Gly Ile
60 65 70

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| Trp | Phe | Arg | Asn | Phe | Arg | Lys | * | Cys | Gly | Cys | Gly | Gln | Gly | Glu | Gly | | |
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Glu Ile Ala Arg Tyr Arg Gly Arg Gly Pro * Asn Arg Gly * *
 90 95

tgc gac agc acg cgt gat gac taa taa aaa ggc cgt gaa ccc cta cac 566
 Cys Asp Ser Thr Arg Asp Asp * * Lys Gly Arg Glu Pro Leu His
 100 105 110

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 Gln Trp Leu Glu Ile Lys Ser Ser Cys Gly Arg Gly Leu Gln Pro Arg
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 Phe His Val Gln
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 Pro Pro Thr Asn Val Trp Pro Ile Trp Asn Ile Arg Cys Asn Tyr Phe
 50 55 60
 Ala Gly Leu Glu Gly Ile Trp Phe Arg Asn Phe Arg Lys Cys Gly Cys
 65 70 75 80
 Gly Gln Gly Glu Gly Glu Ile Ala Arg Tyr Arg Gly Arg Gly Pro Asn
 85 90 95
 Arg Gly Cys Asp Ser Thr Arg Asp Asp Lys Gly Arg Glu Pro Leu His
 100 105 110
 Gln Trp Leu Glu Ile Lys Ser Ser Cys Gly Arg Gly Leu Gln Pro Arg
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 gcctgcctcg gttaccctt cagcgtctgg tgaaatcccg cagcgtctag ggaaagatcc 180
 gttctgctcc gcgagggaaa cagagccgtt gacc atg gtt gca acg ggc agt ttg 235
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 Ser Ser Lys Asn Thr Ala Ser Ile Ser Glu Leu Leu Asp Gly Gly Ser
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 His Pro Gly Ser Leu Leu Ser Asp Phe Asp Tyr Trp Asp Tyr Val Val
 25 30 35
 cct gag ccc aac ctc aac gag gtg gtg ttt gaa gag aca aca tgc cag 379
 Pro Glu Pro Asn Leu Asn Glu Val Val Phe Glu Glu Thr Thr Cys Gln
 40 45 50 55
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 Asn Leu Val Lys Met Leu Glu Asn Cys Leu Ser Lys Ser Lys Gln Thr
 60 65 70
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 Lys Leu Gly Cys Ser Lys Val Leu Val Pro Glu Lys Leu Thr Gln Arg
 75 80 85
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 Ile Ala Gln Asp Val Leu Arg Leu Ser Ser Thr Glu Pro Cys Gly Leu
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 Arg Gly Cys Val Met His Val Asn Leu Glu Ile Glu Asn Val Cys Lys
 105 110 115
 aag ctg gat agg att gtg tgt gat gct agt gtg gtg ccg acc ttt gag 619
 Lys Leu Asp Arg Ile Val Cys Asp Ala Ser Val Val Pro Thr Phe Glu
 120 125 130 135
 ctc acg ctg gtg ttc aag cag gag agc tgc tcc tgg acc agc ctc aag 667
 Leu Thr Leu Val Phe Lys Gln Glu Ser Cys Ser Trp Thr Ser Leu Lys
 140 145 150

gac ttc ttc ttt agc gga ggt cgc ttc tcg tcg ggc ctt aag cga act 715
 Asp Phe Phe Phe Ser Gly Gly Arg Phe Ser Ser Gly Leu Lys Arg Thr
 155 160 165

ctg atc ctc agc tcg gga ttt cga ctt gtt aag aaa aaa ctg tac tct 763
 Leu Ile Leu Ser Ser Gly Phe Arg Leu Val Lys Lys Lys Leu Tyr Ser
 170 175 180

ctg att gga acg aca gtc att gag gag tgc tga ggaggaaaaa acaattaaag 816
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 35 40 45
 Phe Glu Glu Thr Thr Cys Gln Asn Leu Val Lys Met Leu Glu Asn Cys
 50 55 60
 Leu Ser Lys Ser Lys Gln Thr Lys Leu Gly Cys Ser Lys Val Leu Val
 65 70 75 80
 Pro Glu Lys Leu Thr Gln Arg Ile Ala Gln Asp Val Leu Arg Leu Ser
 85 90 95
 Ser Thr Glu Pro Cys Gly Leu Arg Gly Cys Val Met His Val Asn Leu
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 Glu Ile Glu Asn Val Cys Lys Lys Leu Asp Arg Ile Val Cys Asp Ala
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 Ser Val Val Pro Thr Phe Glu Leu Thr Leu Val Phe Lys Gln Glu Ser
 130 135 140
 Cys Ser Trp Thr Ser Leu Lys Asp Phe Phe Phe Ser Gly Gly Arg Phe
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| gct gtc ctc ctg atc ttg cta ctc agt gga cag cca ggg agc agc tgg | 104 |
| Ala Val Leu Leu Ile Leu Leu Leu Ser Gly Gln Pro Gly Ser Ser Trp | |
| 10 15 20 | |
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| gca caa gaa gct ggc gat gtg gac ctg gag cta gag cgc tac agc tac | 152 |
| Ala Gln Glu Ala Gly Asp Val Asp Leu Glu Leu Glu Arg Tyr Ser Tyr | |
| 25 30 35 | |
| | |
| gat gat gac ggt gat gac gat gat gac gat gat gaa gaa gag gaa gag | 200 |
| Asp Asp Asp Gly Asp Asp Asp Asp Asp Asp Asp Glu Glu Glu Glu Glu | |
| 40 45 50 | |
| | |
| gag gag acc aac atg atc cct ggc agc agg gac aga gca ccg cct cta | 248 |
| Glu Glu Thr Asn Met Ile Pro Gly Ser Arg Asp Arg Ala Pro Pro Leu | |
| 55 60 65 | |
| | |
| cag tgc tac ttc tgc caa gtg ctt cac agc ggg gag agc tgc aac gag | 296 |
| Gln Cys Tyr Phe Cys Gln Val Leu His Ser Gly Glu Ser Cys Asn Glu | |
| 70 75 80 85 | |
| | |
| aca cag aga tgc tcc agc agc aag ccc ttc tgt atc aca gtc atc tcc | 344 |
| Thr Gln Arg Cys Ser Ser Ser Lys Pro Phe Cys Ile Thr Val Ile Ser | |
| 90 95 100 | |
| | |
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| His Gly Lys Thr Asp Thr Gly Val Leu Thr Thr Tyr Ser Met Trp Cys | |
| 105 110 115 | |
| | |
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| Thr Asp Thr Cys Gln Pro Ile Val Lys Thr Val Asp Ser Thr Gln Met | |
| 120 125 130 | |
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| acc cag acc tgt tgc cag tcc aca ctc tgc aat att cca ccc tgg cag | 488 |
| Thr Gln Thr Cys Cys Gln Ser Thr Leu Cys Asn Ile Pro Pro Trp Gln | |
| 135 140 145 | |
| | |
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| Ser Pro Gln Ile His Asn Pro Leu Gly Gly Arg Ala Asp Ser Pro Leu | |
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| | |
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| 170 175 180 | |
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 Glu Arg Tyr Ser Tyr Asp Asp Asp Gly Asp Asp Asp Asp Asp Asp Asp
 35 40 45
 Glu Glu Glu Glu Glu Glu Glu Thr Asn Met Ile Pro Gly Ser Arg Asp
 50 55 60
 Arg Ala Pro Pro Leu Gln Cys Tyr Phe Cys Gln Val Leu His Ser Gly
 65 70 75 80
 Glu Ser Cys Asn Glu Thr Gln Arg Cys Ser Ser Ser Lys Pro Phe Cys
 85 90 95
 Ile Thr Val Ile Ser His Gly Lys Thr Asp Thr Gly Val Leu Thr Thr
 100 105 110
 Tyr Ser Met Trp Cys Thr Asp Thr Cys Gln Pro Ile Val Lys Thr Val
 115 120 125
 Asp Ser Thr Gln Met Thr Gln Thr Cys Cys Gln Ser Thr Leu Cys Asn
 130 135 140
 Ile Pro Pro Trp Gln Ser Pro Gln Ile His Asn Pro Leu Gly Gly Arg
 145 150 155 160
 Ala Asp Ser Pro Leu Lys Gly Gly Thr Arg His Pro Gln Gly Asp Arg
 165 170 175
 Phe Ser His Pro Gln Val Val Lys Val Thr His Pro Gln Ser Asp Gly
 180 185 190
 Ala His Leu Ser Lys Gly Gly Lys Ala Asn Gln Pro Gln Gly Asn Gly
 195 200 205
 Ala Gly Phe Pro Ala Gly Trp Ser Lys Phe Gly Asn Val Val Leu Leu
 210 215 220
 Leu Thr Phe Leu Thr Ser Leu Trp Ala Ser Gly Ala
 225 230 235

<210> 7
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 <213> Rattus norvegicus

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<223> n = A,T,C or G

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gagctgcccc acagctctga ctgtggactg agggatgtta ggcggatcac ctgagcctcc 120
agaggctcac acta atg agc ggg cgc tct ctt ctt agc cac tgt tgc att 170
Met Ser Gly Arg Ser Leu Leu Ser His Cys Cys Ile
1 5 10

tgg ttt tca ttg act cct ggg cct cgt ttg agt gac act gtc ctt gtc 218
Trp Phe Ser Leu Thr Pro Gly Pro Arg Leu Ser Asp Thr Val Leu Val
15 20 25

ttt tgt ttc aga gct ctc cca gtg tta gtg gac tca gat gag gaa att 266
Phe Cys Phe Arg Ala Leu Pro Val Leu Val Asp Ser Asp Glu Glu Ile
30 35 40

atg acc aga tct gaa ata gct gaa aaa atg ttc tct tca gaa aag ata 314
Met Thr Arg Ser Glu Ile Ala Glu Lys Met Phe Ser Ser Glu Lys Ile
45 50 55 60

atg tga tcagggcccc agtgggtcca gtgtgcatgg gagcgcggtc aggtgatggg 370
Met *

aaaggcctgg ctctcgtcaa aactgacagc tgcgctatga tacatgtctc actttgttgt 430
cttggagatc tgtgtatgca ggtgaagaac tcaagtgtgg gagggctctgc cgcctcagaa 490
agccatcttt gaaacggact cataaagtca gttttgttgc cattaagttg cctgattttg 550
gaaacaattt aagaagtgtt aaagacatgt gttcagatgc ctcttaggag gcagccacag 610
gcatgccagg ttgtgtccct cagttttctc cagacaaaag aatctgcagc tgggctgtggc 670
ggcacactac tggcagttga aagtctgtaa tttcaaggcc aagcctggtc tacatagttc 730
caggacaacc agagagatct acatagttag accctgcctc aaaacacaga aaccnnanna 790
naaaaaaaaa aaaaaaaaaa cggccgc 817

<210> 8
<211> 61
<212> PRT
<213> Rattus norvegicus

<400> 8
Met Ser Gly Arg Ser Leu Leu Ser His Cys Cys Ile Trp Phe Ser Leu
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Thr Pro Gly Pro Arg Leu Ser Asp Thr Val Leu Val Phe Cys Phe Arg
20 25 30
Ala Leu Pro Val Leu Val Asp Ser Asp Glu Glu Ile Met Thr Arg Ser
35 40 45
Glu Ile Ala Glu Lys Met Phe Ser Ser Glu Lys Ile Met
50 55 60

<210> 9
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<212> DNA
<213> Rattus norvegicus

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atgaggctgg ttactcagca ggagtagctg agctgagctg gccctggagg ccctggaggg 120
cctggagtag ggcccagg atg cag gtg cta atg tot atc ccc ggc gct ctt 171
Met Gln Val Leu Met Ser Ile Pro Gly Ala Leu
1 5 10

ctt ccc gac tct acc atg gga tgt aac tcc agg agc ccc tgc cat ctc 219
Leu Pro Asp Ser Thr Met Gly Cys Asn Ser Arg Ser Pro Cys His Leu
15 20 25

ccg tac caa aag act gtg gct tcc gtg tot act cag aaa tca gtt cta 267
Pro Tyr Gln Lys Thr Val Ala Ser Val Ser Thr Gln Lys Ser Val Leu
30 35 40

ctt cgt aaa cag tgt tta aaa cca gac tca ttt aat cag agt gaa gga 315
Leu Arg Lys Gln Cys Leu Lys Pro Asp Ser Phe Asn Gln Ser Glu Gly
45 50 55

ttg cag tcc att ggc ttc tta gca cag aag cag ctg ata aca caa gta 363
Leu Gln Ser Ile Gly Phe Leu Ala Gln Lys Gln Leu Ile Thr Gln Val
60 65 70 75

aac ccc agc cct tga gaggtagaag caagaggatc agaggttcaa gcgcatactc 418
Asn Pro Ser Pro *

ggctccatca caagttcaaa agccgcctgc accaaatggg agtccttgtc tcaaaaaaaaa 478
aaaaaaaaaa agcaaagaaa gcaaaggact cgatgacatg atttatagac aaaagcagtg 538
ggagaaaata ctaaagcccc actgagctgc cagccagggtg tctgtgacta caggtctttt 598
atctgctcat atatattttt acaaaaaatg aaattcatat tggctgctat tttgctggct 658
gctttgctcc cgatcaacat gatttgcacg ttttttccat caataaatgt gccatgatat 718
ttttaaaaaa aaaaaaaaaa aaaaaaaaaa gggcnc 755

<210> 10
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<213> Rattus norvegicus

<400> 10
Met Gln Val Leu Met Ser Ile Pro Gly Ala Leu Leu Pro Asp Ser Thr
1 5 10 15
Met Gly Cys Asn Ser Arg Ser Pro Cys His Leu Pro Tyr Gln Lys Thr
20 25 30
Val Ala Ser Val Ser Thr Gln Lys Ser Val Leu Leu Arg Lys Gln Cys
35 40 45
Leu Lys Pro Asp Ser Phe Asn Gln Ser Glu Gly Leu Gln Ser Ile Gly
50 55 60
Phe Leu Ala Gln Lys Gln Leu Ile Thr Gln Val Asn Pro Ser Pro
65 70 75

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cgccgtg atg tcg acc gca atg aac ttc ggg acc aaa agc ttc cag ccg 109
Met Ser Thr Ala Met Asn Phe Gly Thr Lys Ser Phe Gln Pro
1 5 10

cgg ccc cca gac aaa ggc agc ttc ccg cta gac cac ttc ggt gag tgt 157
Arg Pro Pro Asp Lys Gly Ser Phe Pro Leu Asp His Phe Gly Glu Cys
15 20 25 30

aaa agc ttt aag gaa aaa ttc atg aag tgt ctc cgc gac aag aac tat 205
Lys Ser Phe Lys Glu Lys Phe Met Lys Cys Leu Arg Asp Lys Asn Tyr
35 40 45

gaa aat gct ctg tgc aga aat gaa tct aaa gag tat tta atg tgc agg 253
Glu Asn Ala Leu Cys Arg Asn Glu Ser Lys Glu Tyr Leu Met Cys Arg
50 55 60

atg caa agg cag ctg atg gca cca gaa cca cta gag aaa ctc ggc ttt 301
Met Gln Arg Gln Leu Met Ala Pro Glu Pro Leu Glu Lys Leu Gly Phe
65 70 75

aga gac ata atg gag gag aaa ccg gag gca aag gac aaa tgt tga 346
Arg Asp Ile Met Glu Glu Lys Pro Glu Ala Lys Asp Lys Cys *
80 85 90

gaatcaactgg gctgtgtccc cctacctgga gcagagctga gccottctgc ccaccgtgga 406
gagagctgag ccatacctgtg ctgcccagag gaggggctct ccgtgtcgac tttggctcat 466
ccctgcagca cagaccaaac tgctttctct actgaccaca cttctgcttc agagagnngt 526
ttctcctgtc tngtgtgtgc acaggatctg ctcanngctg aacactgatg tgatatgata 586
tcccacctag tgtggccgca caccaaaagg cctggacagg atttcacagt gactcaacct 646
gagtcctcac acccggaacc tgtcagcgaa aaccaanoga agcaaaatgn ctggcttttg 706
gottacaaac cccatnattt gntttccctt ctcttgggtc tttgttttga caaanctggc 766
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<210> 12
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ccgcgggtgg tggctggtgg ccgcaatctt ggtggctctg atcggggttg tcttagtctg      120
cctgatagtc tacttcgcca acgcagcgca cagcgaggcc tgtaagaacg ggttgcggtt      180
gcaggatgag tgccgaaaca ccacgcacct gttgaagcac cagctnaccg gcgcccagga      240
cagcctgctg cagacggag atg cag gca aac tcc tgc aac cag acc gtg atg      292
                Met Gln Ala Asn Ser Cys Asn Gln Thr Val Met
                  1             5             10
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```
gac ctt cgg gat tcc ctg aag aag aag gtg tct naa acc cag gag caa      340
Asp Leu Arg Asp Ser Leu Lys Lys Lys Val Ser Xaa Thr Gln Glu Gln
                15             20             25
```

```
can gcc cgc atc aag gaa ctt gag aat aag atc gag agg ctg aac caa      388
Xaa Ala Arg Ile Lys Glu Leu Glu Asn Lys Ile Glu Arg Leu Asn Gln
                30             35             40
```

```
gag ctg gag aaa ttt gag gac cca aaa gga aat ttc tac cac agt gca      436
Glu Leu Glu Lys Phe Glu Asp Pro Lys Gly Asn Phe Tyr His Ser Ala
                45             50             55
```

```
ngt gaa ctc aag cgg gtt cgt ggt ggn ctt can cct act tgt gct ttg      484
Xaa Glu Leu Lys Arg Val Arg Gly Gly Leu Xaa Pro Thr Cys Ala Leu
                60             65             70             75
```

```
tgg cgg gac tgt tct nca ctt ttt ang acc caa taa ttgggangta      530
Trp Arg Asp Cys Ser Xaa Leu Phe Xaa Thr Gln *
                80             85
```

```
caaacctgtg taggcattgn nggtngtaat ggcttttgag ggggtcctgg cacccttaag      590
atgtgaanac cattangnng gacccaaaat gnnttttctt gntttgaact ggggcggacc      650
cggagtgggg ggcnggaaat aanntattnn ggnnggaaan aaaaaaaaaa aaaaaaaaaa      710
cgggccc                                           717
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<210> 13
<211> 1235
<212> DNA
<213> Rattus norvegicus

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<223> n = A,T,C or G

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                Met Ser
                  1
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atg aag atg aac cca ggt gac aag gac aag atg ttg ctc ttc tcc cca 106
Met Lys Met Asn Pro Gly Asp Lys Asp Lys Met Leu Leu Phe Ser Pro
5 10 15

ccc ttt gac ccc tgt ctt cta agg cat cta gga agg aac cag tgt cct 154
Pro Phe Asp Pro Cys Leu Arg His Leu Gly Arg Asn Gln Cys Pro
20 25 30

tgg tac tga ttacttaga ttcaacctaa ggggtccagcc actgactaag 203
Trp Tyr *
35

gccaaggcca tttttccata cctgggaggg tagagattca gggttgtggg taagtgggca 263
ctaaacatgg atttgcaagg gaaaacgaca gggcatcgag cttaaatttga atttacctga 323
aattctgaaa tgtacttgta tgaagaaact gttatctgaa acctaaactta aatgggcatc 383
ctgoccttttg tctggtgaga aatgaaagt atctacaata agtgtcaaag caacaaggcc 443
cctctggata tgtctaggcc aggatgagga tactaagtgc cttcaaagcg agagggagggc 503
aggccaagaa cactgcccta ctgaaaggca ggcttggcgg gctagggcct ccaaggccct 563
gatccctgag gcaccacagc cacaacttgt gtaggcctgg cccaggctcag tgaatagggt 623
ctaggcagtg gttctcaacc ttctaatgc tgcaaccctt caatacagtt tctcctggtg 683
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gttatgaatc ataattgtaa tatttttttg agctagaggt ttaccaaggg ggttgtgagc 803
catagggttga aaaccattgt tctaggaata gctccagggg tggtttctga ggcccccgca 863
aggtgggagc tatggggcag ggttggatct tctccaagag cccccaacag gatatatata 923
tatatatata tatatatata tatatatata tatatatata tacttttgata gcatcccatg 983
gaacgactgt ctctgatac taaagggagc ttggaagaaa ccaaggctga gagaagttgt 1043
agagtgggaa ggtaggcgaa gggattgagg tgacacagtg atagcccctt caggggtgggg 1103
tctaccnag acacagata aaggccttag gatgggagat tactctggct gctcagaggg 1163
gaacacaggg acacagcacc aataaaatct ctttcttttc aaaaaaaaaa aaaaaaaaaa 1223
aaaaagcggn cc 1235

<210> 14
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<213> Rattus norvegicus

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tatacagcct tcgcttgaat acgcgtctga agttatgctt tgtgttggtg tgggtttttt 120
tttttttttc ttttcttttt ttttgagct ggggaccgaa cccagggcct tgttgctcta 180
ccactgagct aaatcccca cccctgttgt gtgttttaaa taagtctctt actgtccatt 240
ttgtaattag tgttggtacc ttgtaataat agacatcata caaagtttcc tcttttttgt 300
gccagtgtg agaacatgag aaacatttaa tgagtatttg tttgttaaata aatattta 358
taa cgg cta gaa tgg cag aca cac atg gta gca cat gat ggt gat ttt 406
* Arg Leu Glu Trp Gln Thr His Met Val Ala His Asp Gly Asp Phe
1 5 10 15

cgg ggg cct ttt gtt tgc tca gag ctg gta atc tct gcc ggt tgg ttt 454
Arg Gly Pro Phe Val Cys Ser Glu Leu Val Ile Ser Ala Gly Trp Phe
20 25 30

gct ttg cct ggt ctg gga cta acc tca cat ttt ctc act ctt gct ttc 502
Ala Leu Pro Gly Leu Gly Leu Thr Ser His Phe Leu Thr Leu Ala Phe

GenBank accession number: U00180.1 (Rattus norvegicus genome)

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|---|-----|----|--|
| 35 | 40 | 45 | |
| cga gag att agt cat cct tcc tgt cct act ggg ctc tcg ata gcg ctc | 550 | | |
| Arg Glu Ile Ser His Pro Ser Cys Pro Thr Gly Leu Ser Ile Ala Leu | | | |
| 50 55 60 | | | |
| atc agc ata ctg cat ttc aat ccc agc gaa ggg gtt cgc cga agg ggt | 598 | | |
| Ile Ser Ile Leu His Phe Asn Pro Ser Glu Gly Val Arg Arg Arg Gly | | | |
| 65 70 75 | | | |
| tcg cta ggc cag tgt gat gga tat ctg cag aat tc | 633 | | |
| Ser Leu Gly Gln Cys Asp Gly Tyr Leu Gln Asn | | | |
| 80 85 90 | | | |

<210> 15
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 <213> Rattus norvegicus

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| tgaggcagcc attcctgcag cagcgcctcg cgggtgaagg gccgaactga cgctcctag | 120 |
| atctgtctcg gctgaattac tctcaccgt ttccattctg tgtgcaccag aaatctgaga | 180 |
| tccaggagta tcaacagcaa ag atg tct aat gag cca ccc cct cct tat cca | 232 |
| Met Ser Asn Glu Pro Pro Pro Pro Tyr Pro | |
| 1 5 10 | |

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|---|-----|
| gga ggg cct aca gcc cca cta ctg gag gaa aaa agt gga gcc cca cat | 280 |
| Gly Gly Pro Thr Ala Pro Leu Leu Glu Glu Lys Ser Gly Ala Pro His | |
| 15 20 25 | |

| | |
|---|-----|
| acc cca ggc cga acc ttt cca gct gtg atg cag cca cca cca ggc atg | 328 |
| Thr Pro Gly Arg Thr Phe Pro Ala Val Met Gln Pro Pro Pro Gly Met | |
| 30 35 40 | |

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|---|-----|
| cca ctg ccc tct gtt gac att gcc ccc ccg ccc tat gag ccg cct ggc | 376 |
| Pro Leu Pro Ser Val Asp Ile Ala Pro Pro Pro Tyr Glu Pro Pro Gly | |
| 45 50 55 | |

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|---|-----|
| cat cca ggg cct aag cct ggt ttw atg ccc ccc acn tta cca cac att | 424 |
| His Pro Gly Pro Lys Pro Gly Xaa Met Pro Pro Thr Leu Pro His Ile | |
| 60 65 70 | |

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|---|-----|
| cna ana acc ttn ntn tgt aaa agt taa ataanaangg agggattcga | 471 |
| Xaa Xaa Thr Xaa Xaa Cys Lys Ser * | |
| 75 80 | |

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|---|-----|
| nccccctnca acnggtttca agccaattty mtaaccattt tggttttttc wtttaaaaaa | 531 |
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 Glu Thr Pro Pro Leu Thr Leu Pro Ala Asn Leu Gln Thr Leu His Pro
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 aac aga cca acg ttg agt cca gag aga aaa ctt gaa tgg aat aac gac 383

1000
 900
 800
 700
 600
 500
 400
 300
 200
 100
 0

Asn Arg Pro Thr Leu Ser Pro Glu Arg Lys Leu Glu Trp Asn Asn Asp
 35 40 45

att cca gaa gtg aat cgt ttg aat tct gaa cac tgg aga aaa act gag 431
 Ile Pro Glu Val Asn Arg Leu Asn Ser Glu His Trp Arg Lys Thr Glu
 50 55 60

gag cag cca gga cgg ggg gag gtg ctt ctc ccc gaa ggt gac gtc agt 479
 Glu Gln Pro Gly Arg Gly Glu Val Leu Leu Pro Glu Gly Asp Val Ser
 65 70 75

ggc aac ggt atg aca gag ctg ttg ccc atc ggt cgg cac caa caa aag 527
 Gly Asn Gly Met Thr Glu Leu Leu Pro Ile Gly Arg His Gln Gln Lys
 80 85 90 95

cgt ccc cac gat gcg ggg cca gag gac cat gct ttt gaa gat caa ttg 575
 Arg Pro His Asp Ala Gly Pro Glu Asp His Ala Phe Glu Asp Gln Leu
 100 105 110

cat cct ctc gtc cac tct gac aga act ccc gtt cat cgg gtg ttc gat 623
 His Pro Leu Val His Ser Asp Arg Thr Pro Val His Arg Val Phe Asp
 115 120 125

gtg tcc cac ttg gag cag cct gtt cac tcc agc cac gtg gaa gga atg 671
 Val Ser His Leu Glu Gln Pro Val His Ser Ser His Val Glu Gly Met
 130 135 140

ttg gcc aag atg gag ggg atg gca caa agg agt ggg cac caa gtc tcg 719
 Leu Ala Lys Met Glu Gly Met Ala Gln Arg Ser Gly His Gln Val Ser
 145 150 155

aag gca gcg cct cct ctc cag tca ctt ctt gct tag attacatggt 765
 Lys Ala Ala Pro Pro Leu Gln Ser Leu Leu Ala *
 160 165 170

gcctaacaat gtttctttcc atgttttgat tagtaaaacta actcgtggtg gcaatcatga 825
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 tgcgggtgat gctcacacac agactcattg taattcaccg ttttaccgag aagggggggg 945
 gggcgaatgt tctgtgttga tgctttgttt ttggtactaa aacagnatta tcttttgaat 1005
 attgtaggga catgagtata taaagtctat ccagtcacaaa tggctagaat tgngcctttg 1065
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 cggagtttga atttgtttct aacctgtga attcttcaac atcatcacct ttggttcagt 1185
 gattttgcac tttgagtttg gatactgtgt ctgcttggtt ggtagtggtta gtatttttct 1245
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 acaggatgca cactgcttta tttcaatctt cctctttttt tcttggtttc accagtgagc 1605
 gtaagcattg gaaaaatatg tgtagtctta tctttctata agacgatttt aataaactaa 1665
 aatcacaaat gctgtaaagt ttgtgcgcac cagaatggag gctaaottca taaacattgt 1725
 gctgtgcgaa tattcctaaa atgatcccca agctgtggtt ttctagaaga catagttcag 1785
 aaccgctttt gaaaaatctg tctcgtgag ctcactcagt ttctgtcgga ctttttagaga 1845
 cagtgaagg attacctcat tgagacgttt cctgtctctc ttcaactcca cagggctctg 1905
 acggtggctt tgtttttctt tctagactat tcaaacatgt agataagtta tatttttctt 1965
 taagtgttta aagtaaacac ttttcaaaaa aaaaaaaaaa aaaaaaaaaa gcggccgc 2023

1000 900 800 700 600 500 400 300 200 100 0

[illegible]

| | | | | | | | | | | | | | | | |
|-----------|-----|-----------|-----|-----------|-----------|-----------|-----------|-----------|-----------|-----|-----------|-----------|-----------|-----------|-----------|
| Arg 1 | Leu | Glu | Trp | Gln 5 | Thr | His | Met | Val | Ala 10 | His | Asp | Gly | Asp | Phe 15 | Arg |
| Gly | Pro | Phe | Val | Cys 20 | Ser | Glu | Leu | Val 25 | Ile | Ser | Ala | Gly | Trp 30 | Phe | Ala |
| Leu | Pro | Gly 35 | Leu | Gly | Leu | Thr | Ser 40 | His | Phe | Leu | Thr | Leu 45 | Ala | Phe | Arg |
| Glu 50 | Ile | Ser | His | Pro | Ser | Cys 55 | Pro | Thr | Gly | Leu | Ser 60 | Ile | Ala | Leu | Ile |
| Ser 65 | Ile | Leu | His | Phe | Asn 70 | Pro | Ser | Glu | Gly 75 | Val | Arg | Arg | Arg | Gly | Ser 80 |
| Leu | Gly | Gln | Cys | Asp 85 | Gly | Tyr | Leu | Gln 90 | Asn | | | | | | |

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[illegible]

[illegible]

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| gacggggttaa | acttctataa | catcttaact | aaaagcacc | cgcacacctc | tatggagtcg | 879 |
| agcctcgagt | tcttcgggag | ccccttagtt | cgtctctgtc | agcgccacgt | gagacaccta | 939 |
| caaggagacg | ccttaagtca | gctcatgaac | ggtcccatca | aaaagaagct | caaaattatc | 999 |
| cctgacgacg | tctcctgggg | agccagtcg | tcttcggtct | tcataagcat | ggaagaggac | 1059 |
| ttcatgaagc | ctgtcatcga | catcgtggat | acgttgctgg | aactcggggg | caatgtgact | 1119 |
| gtgtacaatg | ggcagctgga | tctcattgtg | gacaccatag | gtcaggagtc | ctgggttcag | 1179 |
| aagctgaagt | ggccacagct | gtccagattc | aatcagctaa | aatggaaggc | cctgtacacc | 1239 |
| gatcctaagt | cttcagaaac | atctgcattt | gtcaagtctt | atgagaacct | agcgttctac | 1299 |
| tggtacctaa | aggcgggtca | catggttctt | gctgaccaag | gggacatggc | tctgaagatg | 1359 |
| atgaggctgg | ttactcagca | ggagtagctg | agctgagctg | gccctggagg | ccctggaggc | 1419 |
| cctggagtag | ggcccaggat | gcaggtgcta | atgtctatcc | cggcgctctt | tcttcccgac | 1479 |
| tctaccatgg | ctatgaactc | caggagcccc | tgccatctcc | cgtaccacaaa | gactctggct | 1539 |
| tccgtgtcta | ctcagaaatc | agttctactt | cgtaaacagt | ggttaaacc | agactcattt | 1599 |
| aatcagagtg | aaggattgca | gtccattggc | ttcttagcac | agaagcagct | gataacacaa | 1659 |

gtaaacccca gcccttgaga ggtagaagca agaggatcag aggttcaagc gcatoctcgg 1719
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<213> Rattus norvegicus

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Leu Leu Glu Glu Lys Ser Gly Ala Pro His Thr Pro Gly Arg Thr Phe
20 25 30
Pro Ala Val Met Gln Pro Pro Pro Gly Met Pro Leu Pro Ser Val Asp
35 40 45
Ile Ala Pro Pro Pro Tyr Glu Pro Pro Gly His Pro Gly Pro Lys Pro
50 55 60
Gly Xaa Met Pro Pro Thr Leu Pro His Ile Xaa Xaa Thr Xaa Xaa Cys
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Lys Ser

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<211> 630
<212> DNA
<213> Rattus norvegicus

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<223> n = A,T,C or G

<221> CDS
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tacctcaggg ctgtgagaac ggcactcctg atg tct gag aaa gag aaa caa gat 114
Met Ser Glu Lys Glu Lys Gln Asp
1 5

tgg ctg aag gat cct ccg ttc ctt cag aga cct ggg tgg aga gca tta 162
Trp Leu Lys Asp Pro Pro Phe Leu Gln Arg Pro Gly Trp Arg Ala Leu
10 15 20

ggg aca cga aga aca gag tag cggaagaaga gttcttaagt aataagttta 213
Gly Thr Arg Arg Thr Glu *
25 30

octoctgact ggctcacatc actgccttac tctgtagaaa gcaggtcac tcacggattt 273
ccccctccca cccccccagc tggatcattt tttgactcag ggaaaataat taaattattg 333

| | | | | | | |
|------------|------------|-------------|-------------|------------|------------|-----|
| tccaactggt | agtgttgatc | ggtaacagca | gaaaggcaga | aagttcctga | taatctcaat | 393 |
| attatctttt | caaaagtatt | ttcctgggaat | gttgtttgct | ttggcattac | aaagttctgt | 453 |
| actcttaaaa | atattttgac | ttgctgggca | tggaggtcac | acctttaatc | cagaggcagg | 513 |
| catggatcca | caggagttca | aggccgcctg | gctacaaaagc | gagttcaagg | gcagccaggg | 573 |
| ctacacagag | agacctgtgc | tctnaccnn | tnannaaaaa | acnaaaaagc | cggccgc | 630 |

<210> 23
 <211> 445
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> CDS
 <222> (113)...(232)

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| <400> 23 | |
| tctagcgaac cccttcggta tagtcttttag gtagtggcctt agtccctgga agctctgggtt | 60 |
| gcttggcatt tcaacgtgct tcttaaataa ctgttttatt agtcagtaca ag atg ctt | 118 |
| | Met Leu |
| | 1 |

| | |
|---|-----|
| tgt ata tca gat ctg aaa tat ctt aaa att atc act tgc att gta aat | 166 |
| Cys Ile Ser Asp Leu Lys Tyr Leu Lys Ile Ile Thr Cys Ile Val Asn | |
| 5 10 15 | |

| | |
|---|-----|
| tac tat tcc ttt cgc aga aat aat gaa tgc ttc aag aaa aaa aaa agc | 214 |
| Tyr Tyr Ser Phe Arg Arg Asn Asn Glu Cys Phe Lys Lys Lys Lys Ser | |
| 20 25 30 | |

| | |
|--|-----|
| tgt ttg tat tgg gtt taa aacgtttcca aacaccaatt attctttact | 262 |
| Cys Leu Tyr Trp Val * | |
| 35 | |

| | |
|--|-----|
| taagtcatcc gatctagtta tttaaattatt attactgcct tcacactatc aaagatggta | 322 |
| aatatctgat agaatcatat tcaaaatact tctgtttcac atttcttgag aaagtactga | 382 |
| ctgtctgagt tctttctcaa gaaatgtgaa acagaagtat tttgaatcga aggggttcgc | 442 |
| tag | 445 |

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 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(273)
 <223> n = A,T,C or G

| | |
|--|-----|
| <400> 24 | |
| tctagcgaac cccttcggaa gaactgtata tttgtgcctt gttctgcaag ttaaaaagct | 60 |
| ggtccagaca gtgtcataga attaactttt catttctgta ttaatttttag gactgcaaaa | 120 |
| atcccaaagc tgtatactta gattggattc aataaaaaagt ttaagtttac tnaanaaaaa | 180 |
| aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaanaaaaa aaaaaaaagg | 240 |
| aaaaaaaaaa ncggncnnaa aaaaggnnggc cgc | 273 |

<210> 25
 <211> 170

<212> PRT
<213> Rattus norvegicus

<400> 25

Met Ala Ser Ala Glu Ser Gly Glu Asp Pro Ser His Val Val Gly Glu
1 5 10 15
Thr Pro Pro Leu Thr Leu Pro Ala Asn Leu Gln Thr Leu His Pro Asn
20 25 30
Arg Pro Thr Leu Ser Pro Glu Arg Lys Leu Glu Trp Asn Asn Asp Ile
35 40 45
Pro Glu Val Asn Arg Leu Asn Ser Glu His Trp Arg Lys Thr Glu Glu
50 55 60
Gln Pro Gly Arg Gly Glu Val Leu Leu Pro Glu Gly Asp Val Ser Gly
65 70 75 80
Asn Gly Met Thr Glu Leu Leu Pro Ile Gly Arg His Gln Gln Lys Arg
85 90 95
Pro His Asp Ala Gly Pro Glu Asp His Ala Phe Glu Asp Gln Leu His
100 105 110
Pro Leu Val His Ser Asp Arg Thr Pro Val His Arg Val Phe Asp Val
115 120 125
Ser His Leu Glu Gln Pro Val His Ser Ser His Val Glu Gly Met Leu
130 135 140
Ala Lys Met Glu Gly Met Ala Gln Arg Ser Gly His Gln Val Ser Lys
145 150 155 160
Ala Ala Pro Pro Leu Gln Ser Leu Leu Ala
165 170

<210> 26

<211> 2077

<212> DNA

<213> Rattus norvegicus

<220>

<221> CDS

<222> (200)...(1825)

<400> 26

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gcggtctggg tcccacctcc tctgctttcg caccottgaa gttttggagc accaggaaaa 120
gagggcaagg aaggagaggg gaagcgaaag catatcctaa aacatttact taaaggagga 180
aagaaaaggg gtcgcagaa atg gct ggg gca att ata gaa aac atg agc acc 232
Met Ala Gly Ala Ile Ile Glu Asn Met Ser Thr
1 5 10
aag aag ctc tgc att gtt gga ggg att ctt ctg gtt ttc caa atc gtt 280
Lys Lys Leu Cys Ile Val Gly Gly Ile Leu Leu Val Phe Gln Ile Val
15 20 25
gcc ttt ctg gtg gga ggc ttg atc gct cca gca ccc aca acg gca gtg 328
Ala Phe Leu Val Gly Gly Leu Ile Ala Pro Ala Pro Thr Thr Ala Val
30 35 40
tcc tac gtg gca gca aaa tgt gtg gat gtc cgg aag aac cac cat aaa 376
Ser Tyr Val Ala Ala Lys Cys Val Asp Val Arg Lys Asn His His Lys
45 50 55
aca aga tgg ctg atg ccc tgg gga cca aac aag tgt aac aag atc aat 424

| | | | | | | | | | | | | | | | | |
|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Thr 60 | Arg | Trp | Leu | Met | Pro 65 | Trp | Gly | Pro | Asn | Lys 70 | Cys | Asn | Lys | Ile | Asn 75 | |
| gac Asp | ttc Phe | gaa Glu | gaa Glu | gca Ala 80 | att Ile | cca Pro | agg Arg | gaa Glu | att Ile 85 | gaa Glu | gcg Ala | aat Asn | gac Asp | att Ile 90 | gtg Val | 472 |
| ttt Phe | tct Ser | gta Val | cac His 95 | att Ile | ccc Pro | ctc Leu | cct Pro | tct Ser 100 | atg Met | gag Glu | atg Met | agc Ser | cca Pro 105 | tgg Trp | ttc Phe | 520 |
| cag Gln | ttt Phe | atg Met 110 | ctg Leu | ttt Phe | atc Ile | ctg Leu | cag Gln 115 | ata Ile | gac Asp | att Ile | gct Ala | ttc Phe 120 | aag Lys | cta Leu | aac Asn | 568 |
| aac Asn | caa Gln 125 | atc Ile | aga Arg | gaa Glu | aat Asn | gca Ala 130 | gaa Glu | gtt Val | tcc Ser | atg Met | gat Asp 135 | gtt Val | tcc Ser | ctg Leu | ggt Gly | 616 |
| tac Tyr 140 | cgt Arg | gat Asp | gat Asp | atg Met | ttt Phe 145 | tct Ser | gag Glu | tgg Trp | act Thr | gaa Glu 150 | atg Met | gcg Ala | cac His | gaa Glu 155 | aga Arg | 664 |
| gta Val | cca Pro | cgt Arg | aaa Lys 160 | ctc Leu | aga Arg | tgc Cys | act Thr | ttc Phe 165 | aca Thr | tcc Ser | ccc Pro | aag Lys | acc Thr | cca Pro 170 | gag Glu | 712 |
| cat His | gaa Glu | ggt Gly | cgt Arg 175 | cat His | tat Tyr | gaa Glu | tgt Cys | gat Asp 180 | gtc Val | ctt Leu | cct Pro | ttc Phe | atg Met 185 | gaa Glu | att Ile | 760 |
| ggg Gly | tca Ser | gtg Val 190 | gct Ala | cat His | aag Lys | tat Tyr | tac Tyr 195 | ctt Leu | cta Leu | aat Asn | atc Ile | cgg Arg 200 | cta Leu | cct Pro | gta Val | 808 |
| aat Asn 205 | gag Glu | aag Lys | aag Lys | aaa Lys | atc Ile | aat Asn 210 | gtt Val | gga Gly | att Ile | ggg Gly | gaa Glu 215 | ata Ile | aag Lys | gac Asp | att Ile | 856 |
| cgg Arg 220 | ttg Leu | gtg Val | gga Gly | atc Ile | cac His 225 | caa Gln | aat Asn | gga Gly | ggt Gly | ttc Phe 230 | act Thr | aag Lys | gta Val | tgg Trp | ttt Phe 235 | 904 |
| gct Ala | atg Met | aag Lys | acc Thr 240 | ttc Phe | ctc Leu | aca Thr | ccc Pro | agc Ser | atc Ile 245 | ttc Phe | atc Ile | att Ile | atg Met | gtg Val 250 | tgg Trp | 952 |
| tat Tyr | tgg Trp | aga Arg | agg Arg 255 | atc Ile | acc Thr | atg Met | atg Met | tcc Ser 260 | cga Arg | cct Pro | cca Pro | gtg Val | ctt Leu 265 | ctg Leu | gaa Glu | 1000 |
| aaa Lys | gtc Val | atc Ile 270 | ttt Phe | gcc Ala | ctt Leu | ggg Gly | att Ile 275 | tcc Ser | atg Met | acc Thr | ttt Phe 280 | atc Ile | aat Asn | atc Ile | cct Pro | 1048 |
| gtg Val | gaa Glu | tgg Trp | ttt Phe | tcc Ser | att Ile | gga Gly | ttt Phe | gat Asp | tgg Trp | acc Thr | tgg Trp | atg Met | ctg Leu | tta Leu | ttt Phe | 1096 |

| 285 | 290 | 295 | |
|---|-----|-----|------|
| ggt gac ata cga cag ggc atc ttc tat gca atg ctt ctt tcc ttc tgg | | | 1144 |
| Gly Asp Ile Arg Gln Gly Ile Phe Tyr Ala Met Leu Leu Ser Phe Trp | | | |
| 300 | 305 | 310 | 315 |
| atc atc ttc tgt ggc gag cac atg atg gat caa cat gag cgg aat cac | | | 1192 |
| Ile Ile Phe Cys Gly Glu His Met Met Asp Gln His Glu Arg Asn His | | | |
| | 320 | 325 | 330 |
| att gca ggg tat tgg aag caa gtt gga cca att gct gtt ggc tct ttc | | | 1240 |
| Ile Ala Gly Tyr Trp Lys Gln Val Gly Pro Ile Ala Val Gly Ser Phe | | | |
| | 335 | 340 | 345 |
| tgc ctc ttc ata ttt gac atg tgt gag aga gga gtg caa ctc aca aat | | | 1288 |
| Cys Leu Phe Ile Phe Asp Met Cys Glu Arg Gly Val Gln Leu Thr Asn | | | |
| | 350 | 355 | 360 |
| cct ttc tac agt atc tgg act aca gat gtt gga aca gaa ctg gct atg | | | 1336 |
| Pro Phe Tyr Ser Ile Trp Thr Thr Asp Val Gly Thr Glu Leu Ala Met | | | |
| | 365 | 370 | 375 |
| gct ttc atc att gtg gca ggt atc tgc ctc tgc ctc tac ttc ctg ttt | | | 1384 |
| Ala Phe Ile Ile Val Ala Gly Ile Cys Leu Cys Leu Tyr Phe Leu Phe | | | |
| | 380 | 385 | 390 |
| ctg tgt ttc atg gta ttt caa gta ttc aga aac atc agt ggg aaa cag | | | 1432 |
| Leu Cys Phe Met Val Phe Gln Val Phe Arg Asn Ile Ser Gly Lys Gln | | | |
| | 400 | 405 | 410 |
| tct agc ctc cca gcc atg agc aaa gtc cgg agg ctg cac tat gag ggt | | | 1480 |
| Ser Ser Leu Pro Ala Met Ser Lys Val Arg Arg Leu His Tyr Glu Gly | | | |
| | 415 | 420 | 425 |
| ctg att ttc agg ttc aag ttc ctc atg ctg atc acc ttg gct tgt gct | | | 1528 |
| Leu Ile Phe Arg Phe Lys Phe Leu Met Leu Ile Thr Leu Ala Cys Ala | | | |
| | 430 | 435 | 440 |
| gcc atg act gtt atc ttc ttc att gtt agt cag gtg aca gaa ggc cat | | | 1576 |
| Ala Met Thr Val Ile Phe Phe Ile Val Ser Gln Val Thr Glu Gly His | | | |
| | 445 | 450 | 455 |
| tgg aaa tgg ggt ggg gtc aca gtt caa gtg agc agt gct ttc ttc act | | | 1624 |
| Trp Lys Trp Gly Gly Val Thr Val Gln Val Ser Ser Ala Phe Phe Thr | | | |
| | 460 | 465 | 470 |
| gga atc tat ggg atg tgg aac ctg tat gtc ttt gct ttg atg ttc ttg | | | 1672 |
| Gly Ile Tyr Gly Met Trp Asn Leu Tyr Val Phe Ala Leu Met Phe Leu | | | |
| | 480 | 485 | 490 |
| tat gca cca tcc cat aag aac tat ggg gaa gac cag tct aat ggt gac | | | 1720 |
| Tyr Ala Pro Ser His Lys Asn Tyr Gly Glu Asp Gln Ser Asn Gly Asp | | | |
| | 495 | 500 | 505 |
| ctg ggt gtc cac agc ggg gaa gaa ctg cag ctc act acc aca atc acc | | | 1768 |
| Leu Gly Val His Ser Gly Glu Glu Leu Gln Leu Thr Thr Thr Ile Thr | | | |
| | 510 | 515 | 520 |

1144
 1192
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 1672
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cat gta gat gga ccg act gag atc tac aag ttg acc cgt aaa gaa gca 1816
His Val Asp Gly Pro Thr Glu Ile Tyr Lys Leu Thr Arg Lys Glu Ala
525 530 535

cag gag tag taggctatgg cattcatcct cagggcaggt gatgaagcca 1865
Gln Glu *
540

agttgctggt gcatgctgac cctcatgaat atgctttcgt atctttatgt cccaggatca 1925
tttttatacct gtcacgttta caagaacatt tctgacatgc atacgtttac ttttaccatg 1985
tattagttac ttttatattt ctgtgataaa acaccatgag aaatacaatt tacagaagca 2045
aaaaaaaaaa aaaaaaaaaa aaaagcggcc gc 2077

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<220>
<221> SIGNAL
<222> (1)...(26)

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Leu Ser Phe Leu Leu Gly Phe Ser Ala Gly Ser Ala Leu Asn Trp Arg
-10 -5 1 5
Glu Gln Glu Gly Lys Glu Val Trp Asp Tyr Val Thr Val Arg Glu Asp
10 15 20
Ala Arg Met Phe Trp Trp Leu Tyr Tyr Ala Thr Asn Pro Cys Lys Asn
25 30 35
Phe Ser Glu Leu Pro Leu Val Met Trp Leu Gln Gly Gly Pro Gly Gly
40 45 50
Ser Ser Thr Gly Phe Gly Asn Phe Glu Glu Ile Gly Pro Leu Asp Thr
55 60 65 70
Arg Leu Lys Pro Arg Asn Thr Thr Trp Leu Gln Trp Ala Ser Leu Leu
75 80 85
Phe Val Asp Asn Pro Val Gly Thr Gly Phe Ser Tyr Val Asn Thr Thr
90 95 100
Asp Ala Tyr Ala Lys Asp Leu Asp Thr Val Ala Ser Asp Met Met Val
105 110 115
Leu Leu Lys Ser Phe Phe Asp Cys His Lys Glu Phe Gln Thr Val Pro
120 125 130
Phe Tyr Ile Phe Ser Glu Ser Tyr Gly Gly Lys Met Ala Ala Gly Ile
135 140 145 150
Ser Leu Glu Leu His Lys Ala Ile Gln Gln Gly Thr Ile Lys Cys Asn
155 160 165
Phe Ser Gly Val Ala Leu Gly Asp Ser Trp Ile Ser Pro Val Asp Ser
170 175 180
Val Leu Ser Trp Gly Pro Tyr Leu Tyr Ser Val Ser Leu Leu Asp Asn
185 190 195
Lys Gly Leu Ala Glu Val Ser Asp Ile Ala Glu Gln Val Leu Asn Glu
200 205 210
Lys Gln Gly Leu Leu Gln Gly Ser His Ser Ala Val Gly Glu Ser Arg
215 220 225 230
Asn Asp His

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aat gac atg ggc ctt caa cct ctg cct gta ggg aag gac gca cac agt 208
Asn Asp Met Gly Leu Gln Pro Leu Pro Val Gly Lys Asp Ala His Ser
25 30 35 40

gca cca gga gtg aca gtc tct ggg aaa aac cac aaa aga act cag gca 256
Ala Pro Gly Val Thr Val Ser Gly Lys Asn His Lys Arg Thr Gln Ala
45 50 55

cct gac aag aaa cag aga att gat gtt tgt cta gaa agc cag gac ttt 304
Pro Asp Lys Lys Gln Arg Ile Asp Val Cys Leu Glu Ser Gln Asp Phe
60 65 70

cta atg aag aca aat act tcc aag gag tta aaa atg gca atg gag agg 352
Leu Met Lys Thr Asn Thr Ser Lys Glu Leu Lys Met Ala Met Glu Arg
75 80 85

tcc ttt aat cca gtc aac ctt tcc ctg act gtg gtg taa aagaaaatga 401
Ser Phe Asn Pro Val Asn Leu Ser Leu Thr Val Val *
90 95 100

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|-------------|------------|------------|------------|-------------|------------|------|
| ggagcgccctt | ctctccatct | tccctcctt | ctctccttc | caattgcgtc | atctgaaatt | 461 |
| gaatttcctc | tctcctcca | ccacctataa | tgtgtgct | gaaaaaaatg | agtttctcc | 521 |
| ctcatcacc | acagagaagt | caagggtga | acttgagagc | ctcccaacc | tgcctcttc | 581 |
| tccaccacca | ggagatgaga | aattctgatc | ggaatgtcta | ccaacatccc | tacctctcc | 641 |
| cctcccaaca | gtcccatccc | aaccagcaca | tcttctttcc | tctctgttc | tagaacatca | 701 |
| cagtgaagca | tttttacaac | agtattcccg | aaaagaaacc | ttggactctc | atcggttca | 761 |
| ctcacaggct | aaaatcctaa | caggaaaatc | accaccccca | acactcccca | aacccaaact | 821 |
| tcccgagaga | atcaaagcta | agatgagcca | ggattcacca | agcgggtgaat | tggaaagatc | 881 |
| tctgtcagat | gtggaatta | aaactaccct | ctcaaaggat | cagaaaagtt | cgctggtggc | 941 |
| agaaagccgt | gagcacacag | aggccaagca | agaagtattc | cgaaaaagcc | ttggaagaaa | 1001 |
| acagctgtcc | attagctctg | caaactccct | ctctcagaca | gttcagaaa | tcccagcacc | 1061 |
| caaggaaaaa | cagacagcac | cccttgttaa | atctcactca | tcccatcag | gttcagaaca | 1121 |
| acaaagtctt | aagccttaca | tgagaaaatt | taagacaccc | ttaatgattg | cggaagaaaa | 1181 |
| atacagacaa | caaagggaag | agcttgagaa | acagagacgg | gagagttctt | gccatagcat | 1241 |
| catcaaaaaa | gaaaccagc | accgcagctt | atcaaanntt | aaaaaaaaaa | aaannnagc | 1301 |
| ggnccccc | | | | | | 1310 |

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<210> 31
<211> 774
<212> DNA
<213> Rattus norvegicus
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<220>
<221> misc_feature
<222> (1)...(774)
<223> n = A,T,C or G
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<221> CDS
<222> (297)...(494)
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<400> 31

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|------------|------------|------------|------------|------------|------------|-----|
| tctagcgaac | cccttcgctt | tttttttttt | tttttttttt | ttttccccc | tttcctattt | 60 |
| attaatggg | ggaagtatgt | ttatgtggga | tttatccact | tcttttagat | tctcctacct | 120 |
| gttgatctgt | aattattcct | agtagtctct | tagagttctt | agaagcatgc | tgttaccgct | 180 |
| aatatttcct | tttggtttgg | atcttactta | aacatattgt | ttccttactc | tctttttcat | 240 |
| cccagcttgt | ctaactgaaa | ggccagaccc | aacttgatct | atccctttaa | aacttc atg | 299 |

Met
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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tct | tgg | cct | ggt | gat | ttc | tct | gct | cca | ggt | gtc | acc | gaa | ggg | ggt | cgc | 347 |
| Ser | Trp | Pro | Val | Asp | Phe | Ser | Ala | Pro | Gly | Val | Thr | Glu | Gly | Val | Arg | |
| | | 5 | | | | | | 10 | | | | | 15 | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cta | gcg | aac | ccc | ttc | gta | aca | gcc | aag | ggt | ttt | gag | aca | gag | ggt | tca | 395 |
| Leu | Ala | Asn | Pro | Phe | Val | Thr | Ala | Lys | Val | Phe | Glu | Thr | Glu | Val | Ser | |
| | | 20 | | | | | 25 | | | | | | 30 | | | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| aca | gca | ttc | ctg | gag | gag | aca | caa | agg | aca | gat | gag | tca | cat | gaa | gga | 443 |
| Thr | Ala | Phe | Leu | Glu | Glu | Thr | Gln | Arg | Thr | Asp | Glu | Ser | His | Glu | Gly | |
| | | 35 | | | | 40 | | | | | 45 | | | | | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tgg | gag | gag | gga | agg | tgg | ctg | ttg | ata | ggt | att | ttg | aga | cac | tct | att | 491 |
| Trp | Glu | Glu | Gly | Arg | Trp | Leu | Leu | Ile | Gly | Ile | Leu | Arg | His | Ser | Ile | |
| | 50 | | | 55 | | | | | 60 | | | | | 65 | | |

| | | | | | | |
|-----|------------|-----------|------------|------------|------------|-----|
| tga | gtcctacaca | acactcccc | ctccccccaa | accattttta | tgtctattga | 544 |
|-----|------------|-----------|------------|------------|------------|-----|

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|------------|------------|-------------|------------|------------|------------|-----|
| cctttcctct | agtcatacag | ggaaattcac | agttacctac | aaagaaccac | taattgtaac | 604 |
| aagtcaagag | gaaacttatt | tttgataatg | actcattgaa | gatgttttga | aaatttaaaa | 664 |
| ataagctctg | ttagcagaag | tctgtningaa | aagcangaag | gaantgtttg | tttattanat | 724 |
| aaataaaagg | cggcgaggac | aacaaaaaaaa | aaaaaaaaaa | aagcggccgc | | 774 |

<210> 33
 <211> 1259
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> CDS
 <222> (92)...(220)

| | |
|-------------|-------------------------------|
| <400> 33 | |
| tctagcgaac | cccttcgcga |
| agggggttcgc | cgaaggggtt |
| cgcttcagga | gttaatgtag |
| acttgactta | agcatcctga |
| tttaaccaag | a atg gtg gca cac aac ttt aac |
| | Met Val Ala His Asn Phe Asn |
| | 1 5 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ccc | cat | gct | ggg | gaa | gca | gag | gca | cac | tta | atc | tgt | gtg | agt | ccc | agg | 160 |
| Pro | His | Ala | Gly | Glu | Ala | Glu | Ala | His | Leu | Ile | Cys | Val | Ser | Pro | Arg | |
| | | 10 | | | | 15 | | | | | | 20 | | | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cca | tcc | agg | gat | acc | gta | gta | gtg | aga | ccc | tgt | ctc | aca | aaa | caa | aga | 208 |
| Pro | Ser | Arg | Asp | Thr | Val | Val | Val | Arg | Pro | Cys | Leu | Thr | Lys | Gln | Arg | |
| | | 25 | | | | 30 | | | | | 35 | | | | | |

| | | | | | | | | |
|-----|-----|-----|-----|-------------|-----------|------------|------------|-----|
| atg | gga | att | tag | ggctgggtggg | gtcagcatg | caactgtgcc | tgttacctag | 260 |
|-----|-----|-----|-----|-------------|-----------|------------|------------|-----|

gag
tgg
gag
gga
agg
tgg
ctg
ttg
ata
ggt
att
ttg
aga
cac
tct
att
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Met Gly Ile *

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|------------|-------------|-------------|-------------|-------------|-------------|------|
| tctggcctga | gttcaattcc | caagactcaa | tgtatgagga | gagaaacgat | ttctgaactc | 320 |
| attcattgat | ctccaaatgt | gtggtatagg | tgcccttccc | ttaaataaaa | caaacaaaca | 380 |
| aaaaacaaca | aaaacaacaa | accccccaata | aatgtatatt | taatttttaa | agactgtact | 440 |
| tgggcatggt | acttcacatc | tacagttacg | acattctaga | ggctcaggcc | tgggaattgc | 500 |
| tatgaatttg | aggccagtct | gggtagaggt | gactttctcat | ctaggcagga | ctacgtaata | 560 |
| agtctttgcc | caaaaataaa | cagcaaccca | aataagagca | acaagaattc | tccctccaaa | 620 |
| tagtaacctg | ggcctggaga | gacagcttag | caactgagtg | cttgccgagc | catcgaggac | 680 |
| tggagtcctg | attccagcac | ccgtgtgaca | gacaagctgg | gcgttcactc | atgctgatga | 740 |
| acccaaggc | tgaggagaca | ctgactcttc | tctggccctg | ttcatgctgt | ccacagggtc | 800 |
| ccaagtagca | gttaagtaga | ctgtcagaca | acatggctgg | ctttttaagc | aagaacagta | 860 |
| actgaagaaa | tacacttttg | aagtactgtt | aattttgctt | aaaacttggt | agggagctgg | 920 |
| aggatggctc | agtgggttaag | agcactgact | gctcttccag | aggtcctgag | ttcaattccc | 980 |
| agcaaccaca | tgggtggctca | caaccatctg | taatgagctc | tgatgccctc | tttttgggtg | 1040 |
| gtctgaagac | agcgacagtg | tactcatata | aaataaaaata | aatctttttt | ttttttaaaa | 1100 |
| gaaatttgct | agagatatgg | caggaagggt | atattttttac | ctattttacct | gggtgggctaa | 1160 |
| tctgtgtatt | tttttcaaaa | ttaagatact | atataggagc | cgcgaagggg | tcgctaggcc | 1220 |
| agtgtgatgg | atatctgcag | aattcgggta | gccgaattc | | | 1259 |

<210> 34

<211> 541

<212> PRT

<213> Rattus norvegicus

<400> 34

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Ala | Ile | Ile | Glu | Asn | Met | Ser | Thr | Lys | Lys | Leu | Cys | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Gly | Gly | Ile | Leu | Leu | Val | Phe | Gln | Ile | Val | Ala | Phe | Leu | Val | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Leu | Ile | Ala | Pro | Ala | Pro | Thr | Thr | Ala | Val | Ser | Tyr | Val | Ala | Ala |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Lys | Cys | Val | Asp | Val | Arg | Lys | Asn | His | His | Lys | Thr | Arg | Trp | Leu | Met |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Trp | Gly | Pro | Asn | Lys | Cys | Asn | Lys | Ile | Asn | Asp | Phe | Glu | Glu | Ala |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Ile | Pro | Arg | Glu | Ile | Glu | Ala | Asn | Asp | Ile | Val | Phe | Ser | Val | His | Ile |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Pro | Leu | Pro | Ser | Met | Glu | Met | Ser | Pro | Trp | Phe | Gln | Phe | Met | Leu | Phe |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Leu | Gln | Ile | Asp | Ile | Ala | Phe | Lys | Leu | Asn | Asn | Gln | Ile | Arg | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asn | Ala | Glu | Val | Ser | Met | Asp | Val | Ser | Leu | Gly | Tyr | Arg | Asp | Asp | Met |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Ser | Glu | Trp | Thr | Glu | Met | Ala | His | Glu | Arg | Val | Pro | Arg | Lys | Leu |
| 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Arg | Cys | Thr | Phe | Thr | Ser | Pro | Lys | Thr | Pro | Glu | His | Glu | Gly | Arg | His |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Tyr | Glu | Cys | Asp | Val | Leu | Pro | Phe | Met | Glu | Ile | Gly | Ser | Val | Ala | His |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Tyr | Tyr | Leu | Leu | Asn | Ile | Arg | Leu | Pro | Val | Asn | Glu | Lys | Lys | Lys |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Ile | Asn | Val | Gly | Ile | Gly | Glu | Ile | Lys | Asp | Ile | Arg | Leu | Val | Gly | Ile |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| His | Gln | Asn | Gly | Gly | Phe | Thr | Lys | Val | Trp | Phe | Ala | Met | Lys | Thr | Phe |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |

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Leu Thr Pro Ser Ile Phe Ile Ile Met Val Trp Tyr Trp Arg Arg Ile
                245                250                255
Thr Met Met Ser Arg Pro Pro Val Leu Leu Glu Lys Val Ile Phe Ala
                260                265                270
Leu Gly Ile Ser Met Thr Phe Ile Asn Ile Pro Val Glu Trp Phe Ser
                275                280                285
Ile Gly Phe Asp Trp Thr Trp Met Leu Leu Phe Gly Asp Ile Arg Gln
                290                295                300
Gly Ile Phe Tyr Ala Met Leu Leu Ser Phe Trp Ile Ile Phe Cys Gly
305                310                315                320
Glu His Met Met Asp Gln His Glu Arg Asn His Ile Ala Gly Tyr Trp
                325                330                335
Lys Gln Val Gly Pro Ile Ala Val Gly Ser Phe Cys Leu Phe Ile Phe
                340                345                350
Asp Met Cys Glu Arg Gly Val Gln Leu Thr Asn Pro Phe Tyr Ser Ile
                355                360                365
Trp Thr Thr Asp Val Gly Thr Glu Leu Ala Met Ala Phe Ile Ile Val
                370                375                380
Ala Gly Ile Cys Leu Cys Leu Tyr Phe Leu Phe Leu Cys Phe Met Val
385                390                395                400
Phe Gln Val Phe Arg Asn Ile Ser Gly Lys Gln Ser Ser Leu Pro Ala
                405                410                415
Met Ser Lys Val Arg Arg Leu His Tyr Glu Gly Leu Ile Phe Arg Phe
                420                425                430
Lys Phe Leu Met Leu Ile Thr Leu Ala Cys Ala Ala Met Thr Val Ile
                435                440                445
Phe Phe Ile Val Ser Gln Val Thr Glu Gly His Trp Lys Trp Gly Gly
                450                455                460
Val Thr Val Gln Val Ser Ser Ala Phe Phe Thr Gly Ile Tyr Gly Met
465                470                475                480
Trp Asn Leu Tyr Val Phe Ala Leu Met Phe Leu Tyr Ala Pro Ser His
                485                490                495
Lys Asn Tyr Gly Glu Asp Gln Ser Asn Gly Asp Leu Gly Val His Ser
                500                505                510
Gly Glu Glu Leu Gln Leu Thr Thr Thr Ile Thr His Val Asp Gly Pro
                515                520                525
Thr Glu Ile Tyr Lys Leu Thr Arg Lys Glu Ala Gln Glu
530                535                540

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<210> 35
 <211> 777
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> CDS
 <222> (247)...(387)

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gctcttagta ctgttctttt ctaagattct tctaatatga cacattaaga ctttcttaaa      120
atgtacaact gctacgctga tctaaacatt caaagtgcac acatttgcgt atgaagccac      180
gtgaccagag tcttggggac taatttctgt cttagtcaga ttcttattgc tatatgaaga      240
aatacc atg ata gtg tca act ttt ata aag aaa aag tat tcc ttt ggg          288
      Met Ile Val Ser Thr Phe Ile Lys Lys Lys Tyr Ser Phe Gly
        1                      5                      10

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| | | | | | | |
|------------|------------|-------------|------------|------------|------------|------|
| ttgtgggcct | ttcctttccc | ctaacgtttc | ctccttcccc | gcaatctgac | cataaatgag | 960 |
| gagatTTTTT | TTTTcttta | ctacactttt | tgcaatccta | gtttgcaatc | ctcagtggtg | 1020 |
| ctggctttca | gttcaaattg | tggagaacca | tgtatctgtg | tggtgagagc | attcattttc | 1080 |
| aagactaatt | cttaaaccgc | ttatccccgg | agacagaaac | cgtggcagag | ttgctatcct | 1140 |
| ctgagctggg | gtggatcatg | tgatcagtta | ggttactaac | atcttcctaa | atgaatcggg | 1200 |
| gttttgtgtt | gctctgtttt | catttggtatg | acagggtgtt | gttctgttta | atgcgtgtgg | 1260 |
| gtttttccaa | catgtccgta | aaaatatctt | ttaagcacca | gangtagtga | agaaagctgt | 1320 |
| gcaaacagca | cccgctcctg | tccccaagaa | awccgaggcg | cccccccaaa | ggtatatc | 1378 |

<210> 38

<211> 1554

<212> DNA

<213> Rattus norvegicus

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<221> misc_feature

<222> (1)...(1554)

<223> n = A,T,C or G

<221> CDS

<222> (141)...(1082)

<400> 38

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|------------|------------|-------------|-------------|-------------|------------|-----|
| tctagcgaac | cccttcgcga | accccttcgc | tgcctcctca | taaagctacc | tcaagacaga | 60 |
| gcgtaactgc | ctcattctag | gagtggactc | ggggaagaca | gcagacacac | catcagggag | 120 |
| ccoctgggta | tctccagaac | atg gca agc | cgt gga tac | ctg cat cac | ctg ctg | 173 |

| | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Arg | Gly | Tyr | Leu | His | His | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | |

| | |
|---|-----|
| act gca gag gga gcc tgg gag gag ttt gta tca aag gcc aag ttg ccc | 221 |
| Thr Ala Glu Gly Ala Trp Glu Glu Phe Val Ser Lys Ala Lys Leu Pro | |
| 15 20 25 | |

| | |
|---|-----|
| agg gat agg gca gtg gcc ctc cac aaa gca ctg agg gat ctg aca gca | 269 |
| Arg Asp Arg Ala Val Ala Leu His Lys Ala Leu Arg Asp Leu Thr Ala | |
| 30 35 40 | |

| | |
|---|-----|
| ctc ttg gcc ata gca gaa aga ggc aga tct cgg aaa ggc tgg aaa ggc | 317 |
| Leu Leu Ala Ile Ala Glu Arg Gly Arg Ser Arg Lys Gly Trp Lys Gly | |
| 45 50 55 | |

| | |
|---|-----|
| aag gag aag ttt gtg aaa gca ttt cct tgc ttg aaa gca gac ttg gag | 365 |
| Lys Glu Lys Phe Val Lys Ala Phe Pro Cys Leu Lys Ala Asp Leu Glu | |
| 60 65 70 75 | |

| | |
|---|-----|
| gag cac atc agc cag ctc tat gcc cta gcc gac cat gct gag gaa ctg | 413 |
| Glu His Ile Ser Gln Leu Tyr Ala Leu Ala Asp His Ala Glu Glu Leu | |
| 80 85 90 | |

| | |
|---|-----|
| cac agg ggc tgc acc gtc tcc aac atg gtg gct gac tcc ttc agt gtt | 461 |
| His Arg Gly Cys Thr Val Ser Asn Met Val Ala Asp Ser Phe Ser Val | |
| 95 100 105 | |

| | |
|---|-----|
| gcc tcc gac atc ctg aac atc ttt ggt ctc ttt ctg gca cct gag tca | 509 |
| Ala Ser Asp Ile Leu Asn Ile Phe Gly Leu Phe Leu Ala Pro Glu Ser | |
| 110 115 120 | |

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 600
 500
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 300
 200
 100
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<210> 40
<211> 1142
<212> DNA
<213> Rattus norvegicus

<220>
<221> misc_feature
<222> (1)...(1142)
<223> n = A,T,C or G

<400> 40
tctagcgaac cccttcggct ttttctgatt taaagtgaag aaatggccat atttgcttga 60
taatcttcag ttgtgtctct ggaactcaac aaagaacgca ttttatgaaa tatacagctg 120
tcttcggtaa agccaacttt cttacacata tttcgggaag taattaacta caatttggac 180
ttatagttac aagggttgct tcgaaacact gctctaaatg tgtctcgtgt tggggtgcta 240
ctttgcttat gtgtaaattt cacagtaatg caatagagaa aggggtgttg tgggtgtggc 300
ttgtgggggg gattgttttg ttgttgttgt ttgagataaa gcttcattct gtagccagga 360
aagcctggaa tttactgtgt catcccaggt agcttcaaac tgggtgcctat cctgcctcag 420
cctccaacgt gttgcaattg caggagtaac ctaccacatc ctgcagctac agtgatctag 480
aacctccccg tcgaagcccc accaccatag aaaccaattt gcattaagtt ttagaattcc 540
caacccaact aaagtttaat aaaaaaagaa aaacaaaaca agattttaaat cattctttcc 600
ctcattcttt tttnagatnc agggctcncc tagttttnaa caaacacagn ngcagngnng 660
ggnnccccng gnggggnttt tttncnttgn gccnctnngc ancccacccn cccaggcngg 720
atngggnggg gtataaaaagt nttancnggc anatgnctn gngcanacc caagtntatc 780
aggnctnan ttncnccca ganaactaga nancntnngc atagtanang ccccntgtgn 840
agatttnaaa ncnctctgtn cacaganana gaancctana tagaaaantc aaaatatttn 900
gngccccaan gttncacc ctgtagagng ggncccaaaa ancngccncc aganagcnng 960
atatntgagt tntgacctnt attctttact acnacgcntt gagagaatat tntgntgggg 1020
ccctanccac atgttttgn ccaagantgt aaanccactt naannctgng ggatatctcn 1080
ctgcanacag aagtgccng cgggatttta aaaaaaaaaa taaaaaaaaa aaaggngccn 1140
cc 1142

<210> 41
<211> 502
<212> DNA
<213> Rattus norvegicus

<220>
<221> misc_feature
<222> (1)...(502)
<223> n = A,T,C or G

<400> 41
tctagcgaac cccttcgttg agactgtgga agttatgtat gaataggaga gtgtgtgttg 60
tgtaacacag acagaaggac attggatcat gttgaacccg caccaccaac tatgagtgat 120
ggtatggaaa gaatgcgaac atttaaactg cgccaatgcg gcggccatct tggtgagaa 180
gttcctagcc gagctttgat gtgatttttt tgatggtaca atgcagcgag catggccacg 240
ggagctttga atccagccga cagctccgag atttgccctt ccagtgcctt tgctaccgt 300
agagaggact gctgagatgg gattccttgt gacaagccta cttaccttta actgccagca 360
tttgtaaggt gcaatcttgt gtattggttt tttattttga cagttttgaa aacatgtttg 420
ntgntcttgg tgtttttcca gtaaaagtaa tcacaaagga aaaaaaaatt aaaaaaaaaa 480
aaaaaaaaaa aaaagcggcc gc 502

<210> 42
<211> 1426
<212> DNA
<213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(1426)
 <223> n = A,T,C or G

<400> 42
 tctagcgaac cccttcgcct tcatatgggt ttacactgta tgcattctcac cgcggcccg 60
 aacctttctt ctcatcccaa tcctgtttga ggggacgggg ggcagggacg gacaacccaa 120
 gacaagggat atttgtgctg tgggtattgc atcttatgga gggctgtagc taactgggac 180
 tcctgggtga cccaacagg cctttgatcc tctgtctctc cccgcttgat ctttcttacc 240
 ttatgcttcc ccaagtgcag ctgagggact acacagtggc tcccggccca ctccaaacac 300
 aggaaatcaa tctcaggag aggagataag aagtgaggag aagccaagat tcaaccaata 360
 gatggtaatt gctcctggga cgcggggggc aagcatcatt tccataggaa ggactgagtt 420
 tggctcctga agcccagtgg agtacctttc tctgctgaa ttctgttgat atccctggcc 480
 aagtcctctt tccagaaacc ccacctttaa aaccagctga gaaggacctt cttctctatg 540
 tttaataggt aactttccat agcttagctt cctgcagtc tcccgagtgc ccagttaaaa 600
 ttctgccata ggtcaaaaagt ggggttgaga ggtgaagtca gaggccatgc atggagctca 660
 gaacgtttct aaacctcctg tgattcattg agtagccct agactctaga aggtcagat 720
 gccaaaaagg ktgactttat aatttcttag ggtcttctca tgggatcgkt ttcagagtgg 780
 gcattcacta aatgatagca agtttattaa ttgtttccca gygcctgatc tctttatttn 840
 cccagggtt ccaaccagag cccttggttg aaagtctccc acccaccccc caccctgaga 900
 cttggtgnt ttctgagatt ccccagggat ggcaaaattg gcattcttac agggagccct 960
 gacttctagc acgttaccta gattttttac cctgctctct ctgcctattt tactatggga 1020
 tcaactgntct ctttggaact aaggaaccac cttgaagtag agtgaggtag ccacgtgttg 1080
 gtggcgaaga atataagcat tggctcttaa aagagaactt ctatgaagtc aggtgcaag 1140
 ctttaacatg gcacaagttg caccttactg gctgctaagt ctggatgtca accaaaggtc 1200
 aactctntaa ttaaagaaaa gcaagggaga agnaggtgg aagnggcttn cataaacttt 1260
 attcaaaatg tctaccagga atggtggtga caccaataat ccacatggt ggatgtngag 1320
 gcaggaagaa tgatggtaag gggcatcctc actacataat gaggtaggc tngactaggt 1380
 taactntgct tnaaaaaaaaa aaaaaaaaaa aaaaaaaagg gnggcc 1426

<210> 43
 <211> 985
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> CDS
 <222> (79)...(255)

<400> 43
 tctagcgaac cccttcgcaa gaactcagac tgctcctgcc tgacttcccta ggtgtcatag 60
 ctctcttctg ccgccagt atg aca tca tca agg aca acg agc cca ata aca 111
 Met Thr Ser Ser Arg Thr Thr Ser Pro Ile Thr
 1 5 10
 aca agg aaa aaa cca aga gtg cat cag aga cca gca ccc cag agc acc 159
 Thr Arg Lys Lys Pro Arg Val His Gln Arg Pro Ala Pro Gln Ser Thr
 15 20 25
 agg gtg ggg gtc tcc tcc gaa gca aga tat gaa acc ctt tca gtg ctt 207
 Arg Val Gly Val Ser Ser Glu Ala Arg Tyr Glu Thr Leu Ser Val Leu
 30 35 40
 gct ctg agc agc tca gaa gta gaa tgc gag agg acc tca ctg ttc tga 255
 Ala Leu Ser Ser Ser Glu Val Glu Cys Glu Arg Thr Ser Leu Phe *

55

| | | | | | | |
|------------|-------------|------------|------------|------------|-------------|-----|
| cgatgattgt | ccaacacaca | tccggccctc | tccgtgtctc | ctcccaccac | catcttctcc | 315 |
| tatcaccggg | cttactatct | tctctcctgg | ctttcctctt | tctgatggcg | gttcctgaag | 375 |
| cctccaacta | accctaact | cggggagcgc | ctcgacagtg | tttgtggcta | aggctacact | 435 |
| cagagacaga | gttgacagaat | gagggagacc | cagcccagag | gacgccattg | ctgggaggtta | 495 |
| gactgggtgc | gagggccctt | ggcacaggac | tcacatctgg | gctgttcagc | ttgacccgaa | 555 |
| ggctgtgtgt | gaaaggggga | aaaagacaag | attgccaggc | agggctgttg | tttttgtggc | 615 |
| ttcgagggac | agaacactgg | ctaaaaggca | gcagccctgc | tgttcttttt | ctcctctgtc | 675 |
| ctgtttccta | ccttacaaga | agtccatgca | accaaccggg | gctctggcac | ttttcttggt | 735 |
| tatttccctc | ctggcttcca | aacaagccct | ctgtggacat | catcaaagca | tggataaccc | 795 |
| ccctctgcag | ggtgggcttc | attctccgct | ggtccctgta | gccttctctg | acacagggtg | 855 |
| aaagtgttaa | aagtggtagg | agtgacagta | gccacagggt | ctccttttcc | catctcagtc | 915 |
| tgaccaagga | ggctgaacta | ccaacccaaa | ttcagcgaaa | aaaaaaaaaa | aaaaaaaaaa | 975 |
| aagcgggcgc | | | | | | 985 |

```
<210> 44
<211> 2010
<212> DNA
<213> Rattus norvegicus
```

```
<220>  
<221> CDS  
<222> (239)...(1507)
```

```
<221> sig_peptide
<222> (239)...(343)
```

```

<400> 44
tctagcgaac cccttcgcgg ggacagacat ggagaaggag atggaggacc ccctggctgg      60
agcagaccaa cagaataggc aactatggct ggagaaccgg gtatcagagt aatgcttgac      120
ctcgggaaac accaaatttc ttcttcgat cgcagaagta gtactcggcg aaattcacta      180
ggtaggaggc tctcatctg ggaagaaccg gtgcctgggg ggacctggct ggataggt      238
atg ggg gat cga ggc cgg tcc cct agt ctc cgg tcc ccc cat ggc agt      286
Met Gly Asp Arg Gly Arg Ser Pro Ser Leu Arg Ser Pro His Gly Ser
-35             -30             -25             -20

```

cct cca act cta agc acc ctc act ctc ctg ctg ctc ctc tgt gga cag 334
Pro Pro Thr Leu Ser Thr Leu Thr Leu Leu Leu Leu Leu Cys Gly Gln
-15 -10 -5

gct cac tcc cag tgc aag atc ctc cgc tgc aat gcc gag tac gtc tcg 382
Ala His Ser Gln Cys Lys Ile Leu Arg Cys Asn Ala Glu Tyr Val Ser
1 5 10

tcc act ctg agc ctt cgg gga ggg ggc tca ccg gac acg cca cat gga 430
 Ser Thr Leu Ser Leu Arg Gly Gly Gly Ser Pro Asp Thr Pro His Gly
 15 20 25

ggc ggc cgt ggt ggg ccg gcc tca ggt ggc ttg tgt cgc gcc ctg cgc 478
Gly Gly Arg Gly Gly Pro Ala Ser Gly Gly Leu Cys Arg Ala Leu Arg
30 35 40 45

tcc tac gct ctc tgc acg cgg cgc acc gcc cgc acc tgc cgc ggg gac 526
 Ser Tyr Ala Leu Cys Thr Arg Arg Thr Ala Arg Thr Cys Arg Gly Asp
 50 55 60

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctc | gct | ttc | cac | tcc | gcg | gtg | cat | ggc | ata | gag | gac | ctg | atg | atc | cag | 574 |
| Leu | Ala | Phe | His | Ser | Ala | Val | His | Gly | Ile | Glu | Asp | Leu | Met | Ile | Gln | |
| | | | 65 | | | | | 70 | | | | | 75 | | | |
| cac | aac | tgc | tca | cgc | cag | ggt | ccc | acg | gcc | tcg | ccc | ccg | gcc | cgg | ggt | 622 |
| His | Asn | Cys | Ser | Arg | Gln | Gly | Pro | Thr | Ala | Ser | Pro | Pro | Ala | Arg | Gly | |
| | | | 80 | | | | | 85 | | | | | 90 | | | |
| cct | gcc | ctg | ccc | ggg | gcc | ggc | cca | gcg | ccc | ctg | acc | cca | gat | ccc | tgt | 670 |
| Pro | Ala | Leu | Pro | Gly | Ala | Gly | Pro | Ala | Pro | Leu | Thr | Pro | Asp | Pro | Cys | |
| | | | 95 | | | | | 100 | | | | | 105 | | | |
| gac | tat | gaa | gcc | cgg | ttt | tcc | agg | ctg | cac | ggt | cga | acc | ccg | ggt | ttc | 718 |
| Asp | Tyr | Glu | Ala | Arg | Phe | Ser | Arg | Leu | His | Gly | Arg | Thr | Pro | Gly | Phe | |
| 110 | | | | | | 115 | | | | | 120 | | | | | 125 |
| ttg | cat | tgt | gct | tcc | ttt | gga | gac | ccc | cat | gtg | cgc | agc | ttc | cac | aat | 766 |
| Leu | His | Cys | Ala | Ser | Phe | Gly | Asp | Pro | His | Val | Arg | Ser | Phe | His | Asn | |
| | | | 130 | | | | | | | | 135 | | | | | 140 |
| cac | ttt | cac | aca | tgc | cgc | gtc | caa | gga | gct | tgg | ccc | cta | cta | gat | aac | 814 |
| His | Phe | His | Thr | Cys | Arg | Val | Gln | Gly | Ala | Trp | Pro | Leu | Leu | Asp | Asn | |
| | | | 145 | | | | | 150 | | | | | 155 | | | |
| gac | ttc | ctc | ttt | gtc | caa | gcc | acc | agc | tcc | ccg | gta | gca | tcg | gga | gcc | 862 |
| Asp | Phe | Leu | Phe | Val | Gln | Ala | Thr | Ser | Ser | Pro | Val | Ala | Ser | Gly | Ala | |
| | | | 160 | | | | | 165 | | | | | 170 | | | |
| aac | gct | acc | acc | atc | cgg | aag | atc | act | atc | ata | ttt | aaa | aac | atg | cag | 910 |
| Asn | Ala | Thr | Thr | Ile | Arg | Lys | Ile | Thr | Ile | Ile | Phe | Lys | Asn | Met | Gln | |
| | | | 175 | | | | | 180 | | | | | 185 | | | |
| gaa | tgc | att | gac | cag | aaa | gtc | tac | cag | gct | gag | gta | gac | aat | ctt | cct | 958 |
| Glu | Cys | Ile | Asp | Gln | Lys | Val | Tyr | Gln | Ala | Glu | Val | Asp | Asn | Leu | Pro | |
| 190 | | | | | | 195 | | | | | 200 | | | | | 205 |
| gca | gcc | ttt | gaa | gat | ggt | tct | gtc | aat | ggg | ggc | gac | cga | cct | ggg | ggc | 1006 |
| Ala | Ala | Phe | Glu | Asp | Gly | Ser | Val | Asn | Gly | Gly | Asp | Arg | Pro | Gly | Gly | |
| | | | 210 | | | | | 215 | | | | | 220 | | | |
| tcg | agt | ttg | tcc | att | caa | act | gct | aac | ctt | ggg | agc | cac | gtg | gag | att | 1054 |
| Ser | Ser | Leu | Ser | Ile | Gln | Thr | Ala | Asn | Leu | Gly | Ser | His | Val | Glu | Ile | |
| | | | 225 | | | | | 230 | | | | | 235 | | | |
| cga | gct | gcc | tac | att | gga | aca | act | ata | atc | gtt | cgt | cag | aca | gct | gga | 1102 |
| Arg | Ala | Ala | Tyr | Ile | Gly | Thr | Thr | Ile | Ile | Val | Arg | Gln | Thr | Ala | Gly | |
| | | | 240 | | | | | 245 | | | | | 250 | | | |
| cag | ctc | tcc | ttc | tcc | atc | agg | gta | gcg | gag | gat | gtg | gca | cgg | gcc | ttc | 1150 |
| Gln | Leu | Ser | Phe | Ser | Ile | Arg | Val | Ala | Glu | Asp | Val | Ala | Arg | Ala | Phe | |
| | | | 255 | | | | | 260 | | | | | 265 | | | |
| tct | gct | gag | cag | gat | cta | cag | ctg | tgt | gtt | ggg | gga | tgc | cct | ccg | agc | 1198 |
| Ser | Ala | Glu | Gln | Asp | Leu | Gln | Leu | Cys | Val | Gly | Gly | Cys | Pro | Pro | Ser | |
| 270 | | | | | | 275 | | | | | 280 | | | | | 285 |
| cag | cga | ctc | tct | cgc | tca | gag | cgc | aat | cgc | cgt | ggg | gc | | | | |

Gln Arg Leu Ser Arg Ser Glu Arg Asn Arg Arg Gly Ala Ile Ala Ile
290 295 300

gat act gcc aga agg ttg tgt aag gaa ggg ctt ccg gtt gaa gat gcc 1294
Asp Thr Ala Arg Arg Leu Cys Lys Glu Gly Leu Pro Val Glu Asp Ala
305 310 315

tac ttc caa tcc tgc gtc ttt gat gtt tca gtc tcc ggt gac ccc aac 1342
Tyr Phe Gln Ser Cys Val Phe Asp Val Ser Val Ser Gly Asp Pro Asn
320 325 330

ttt act gtg gca gct cag tca gct ctg gac gat gcc cga gtc ttc ttg 1390
Phe Thr Val Ala Ala Gln Ser Ala Leu Asp Asp Ala Arg Val Phe Leu
335 340 345

acc gat ttg gag aac ttg cac ctt ttc cca gta gat gcg ggg cct ccc 1438
Thr Asp Leu Glu Asn Leu His Leu Phe Pro Val Asp Ala Gly Pro Pro
350 355 360 365

ctc tct cca gcc acc tgc cta gtc cgg ctt ctt tgc gtc ctc ttt gtt 1486
Leu Ser Pro Ala Thr Cys Leu Val Arg Leu Leu Ser Val Leu Phe Val
370 375 380

ctg tgg ttt tgc att cag taa gtaggccagc aacccgtgac tagtttggaa 1537
Leu Trp Phe Cys Ile Gln *
385

acggtttgag gagagaggtt gatgtgagaa aacacaaaga tgtgccaaag gaaacagtgg 1597
ggacaggaga caacgacctt actcaatcac acgaggttgc agtccagggc tgaaatgacc 1657
ctagaataaaa gattctgaga cagggttttg cactccagac cttggtatgg gctccccatg 1717
aatttcccca ttagtgattt cccacttgta gtgaaattct actctctgta cacctgatat 1777
cactcctgca aggctagaga ttgtgagagc gctaagggcc agcaaaacat taaagggtg 1837
agatatctta aaggcagaaa ctagaaaagg ggaaccatg attatctata agaaaatcaa 1897
aagaggggtt tgggaattta gctcagtgg agagcacttg cctagcaagc gcaaggccct 1957
gggttcggtc cccagctcct aaaaaaaaaa aaaaaaaaaa aaaaagcggc cgc 2010

<210> 45
<211> 705
<212> DNA
<213> Rattus norvegicus

<220>
<221> misc_feature
<222> (1)...(705)
<223> n = A,T,C or G

<221> CDS
<222> (54)...(230)

<400> 45
tctagcgaac cccttcgtgg ggattaaggt tctctatagc taagcctgtc nga atg 56
Met
1

aca aca ccc aga gat ctc acc tgg ggt ggt ggg agc act ctc tgt ctt 104
Thr Thr Pro Arg Asp Leu Thr Trp Gly Gly Gly Ser Thr Leu Cys Leu
5 10 15

| | |
|---|-----|
| gag gga aca tgt acc tac tct ctc ctt cca caa gag cca cat aca ctt | 152 |
| Glu Gly Thr Cys Thr Tyr Ser Leu Leu Pro Gln Glu Pro His Thr Leu | |
| 20 25 30 | |

| | |
|---|-----|
| aga agt tcc agt gaa gat cta tgt gct tca gaa gag agg gga ctt gga | 200 |
| Arg Ser Ser Ser Glu Asp Leu Cys Ala Ser Glu Glu Arg Gly Leu Gly | |
| 35 40 45 | |

| | |
|---|-----|
| ggg gaa agg ggg agt ggg agg ggg gct tga ggacctanct gaaagatttt | 250 |
| Gly Glu Arg Gly Ser Gly Arg Gly Ala * | |
| 50 55 | |

| | |
|---|-----|
| angctgaaag aacttccttg attcaaagac atatgtcagt ngacccaaca atgagaatga | 310 |
| atatgagggc caggaaaact tgtgggaatc agtctcaaga cngaaacnga gaaagaaaga | 370 |
| aaagtggnta ggactcanat tggggaacct gggtagacag gaggggcnag ggaagaaagg | 430 |
| gatcttggtg tntccacagt ttgagacaca tccggngntc gacctattc ccngaagccn | 490 |
| cannanattg tgcttcccn tcnntnnaat gggcctggng gtctnctcc ctttncnng | 550 |
| gacatgaaaa ngntttctgc nnanataacc cccntcttcc ctcccccttn antntgtccc | 610 |
| tacntttttg tccctttttt ttttnaaaaa annaaaataa aggggnncnn tnttccttn | 670 |
| gaaaaaaaaa aaaaaaaaaa aaaaaaccgc ccncc | 705 |

<210> 46
 <211> 968
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(968)
 <223> n = A,T,C or G

<221> CDS
 <222> (86)...(244)

| | |
|--|-----|
| <400> 46 | |
| tctagcgaac cccttcgcga aggggttcgc ttacattcac gcttaagcat attaaactgta | 60 |
| catattaact gatttagagg atact atg gat tcc aca tct tcc ctg agc ata | 112 |
| Met Asp Ser Thr Ser Ser Leu Ser Ile | |
| 1 5 | |

| | |
|---|-----|
| ggg att gat ttg aaa aat gac agg gtt ggc tgt cga ccc cca tcg gag | 160 |
| Gly Ile Asp Leu Lys Asn Asp Arg Val Gly Cys Arg Pro Pro Ser Glu | |
| 10 15 20 25 | |

| | |
|---|-----|
| gaa gca ggt aag gaa tca ctt agg aga act gat ctc aac att ctt cag | 208 |
| Glu Ala Gly Lys Glu Ser Leu Arg Arg Thr Asp Leu Asn Ile Leu Gln | |
| 30 35 40 | |

| | |
|--|-----|
| ttc ttt cta tta ttt act tgt tta gcc tgg agt taa attcccactc | 254 |
| Phe Phe Leu Leu Phe Thr Cys Leu Ala Trp Ser * | |
| 45 50 | |

| | |
|--|-----|
| cttgtgagca cttctaattt gaaaatccac tttcttcaat attttcgaaa tttaaaactg | 314 |
| atggatgacg tgacaaaact tccacgagtt aagaattctc cacctctgat ctcatcgcag | 374 |
| cagggcaciaa tccaaggcat gtgaattgac ttccaggttt atgtgacata taaatgaatt | 434 |
| ctgtctctag atttgatcc cattctccta aatatctcac catgcatgtg cagatattct | 494 |

| 115 | 120 | 125 | |
|---|-----|-----|------|
| aac aaa agc caa caa ctc act gac ttc ata gaa aaa ttc aag tgt gat | | | 674 |
| Asn Lys Ser Gln Gln Leu Thr Asp Phe Ile Glu Lys Phe Lys Cys Asp | | | |
| 130 | 135 | 140 | |
| gga tct cct gtg aat tct gag ctc atc cag gga gct cag agc agt tgt | | | 722 |
| Gly Ser Pro Val Asn Ser Glu Leu Ile Gln Gly Ala Gln Ser Ser Cys | | | |
| 145 | 150 | 155 | |
| ctg aag atc gac agc ctc ctt gaa ctt ctg caa gac agg aga agg cag | | | 770 |
| Leu Lys Ile Asp Ser Leu Leu Glu Leu Leu Gln Asp Arg Arg Arg Gln | | | |
| 160 | 165 | 170 | 175 |
| ctg gac aag cac ttg cag caa cag agg cag gag ttg tct cag gtt ctg | | | 818 |
| Leu Asp Lys His Leu Gln Gln Gln Arg Gln Glu Leu Ser Gln Val Leu | | | |
| 180 | 185 | 190 | |
| cag tta tgt ctg tgg gac caa caa gaa agc cag gtt tct tgt tgg ttt | | | 866 |
| Gln Leu Cys Leu Trp Asp Gln Gln Glu Ser Gln Val Ser Cys Trp Phe | | | |
| 195 | 200 | 205 | |
| cag aaa aca ata aga gat ctg cag gaa cag agt ctg ggt tca tcc ctt | | | 914 |
| Gln Lys Thr Ile Arg Asp Leu Gln Glu Gln Ser Leu Gly Ser Ser Leu | | | |
| 210 | 215 | 220 | |
| tca gac aac aaa gag tta atc cgt aag cac gag gac ctg cca tca aag | | | 962 |
| Ser Asp Asn Lys Glu Leu Ile Arg Lys His Glu Asp Leu Pro Ser Lys | | | |
| 225 | 230 | 235 | |
| caa aga gtc cct gca gtt tag gaattgaaca gaacagtttc ctgattgaat | | | 1013 |
| Gln Arg Val Pro Ala Val * | | | |
| 240 | 245 | | |
| gatcttggcg cctyyttanc ggntgcagat ggtggggcct cctctggntt ctcatectct | | | 1073 |
| tcactaatac tggatttttg ttcccctggt gtgccacatc actttaattt gaaagaaaaa | | | 1133 |
| aaataaattg ggccggaaaa aaaaaaaaaa aaaaaaaaaa rrscggccnc | | | 1183 |

<210> 48

<211> 1051

<212> DNA

<213> Rattus norvegicus

<400> 48

| | |
|--|-----|
| tctagcgaac cccttcgcgc aagatggccg cttcccagac cgctccgcgg catcttcaag | 60 |
| atgcgcgaga agaacgtgca atctcgcgag atcaggctcg ctgcgcggca gtctgctgc | 120 |
| agcctaccct tcctaggagt tggaggaggg aaagctagat tcgattaaga gcaaaaaatt | 180 |
| gttcacgcag cagagcagct gtccaaggaa gtatccaaag gaactgcacc tcagtaaaact | 240 |
| cctggcaagt cttaggatat gacaaagggc acaggatgca ttatgagaaa ggaaggctaa | 300 |
| ggttttcaag aacacagatt tacatcaaac ttgcgttctg aattaatctt tgagaataact | 360 |
| ggactgtgag ctagacattg agtaagaggt ttgttatatc aagaatgtga tctaaaaaaa | 420 |
| aaacattcat atcttcctcc cacaagagga tattttgaaa ctgtgggtca aagtcagact | 480 |
| acaggagagc cctcaaatat gccaaatgtg acagacagca ggattttgaa aatatagtgg | 540 |
| gagtatgtga agatgttcca gtcaaagaga cattgtttcc aaaggaaaga aagtcagtc | 600 |
| gocacacagg aattgtgtat tccctggtag taatgcaaat ggaccacata tggctttctt | 660 |
| ctttaaagag aatacctaatt tttagctaca gagtaaaatg ctgatgatac aaacogtgac | 720 |
| aagtggaggg acaagaaagt aaatggactg atggtgccat tgtggactgg gagggtaaaa | 780 |

| | | | | | | |
|------------|--------------|------------|-------------|------------|------------|------|
| gctgtacatt | tgtgaacaaa | aagatttcct | tgttatgggc | agccatgatt | ctaactgcta | 840 |
| aatggaggca | gtaacaacat | gacctaaaga | gtaaacaatcc | agagatggaa | tgttctcaat | 900 |
| gtctgaaaag | gagcagatat | ctgggtgatg | tgaatgtatg | ctagagattt | tttacaagcc | 960 |
| tgtggtgaat | tagtaattgt | atTTTTttt | gaaagttaaa | caggtaatta | gaaaccccaa | 1020 |
| aaaaaaaaaa | aataaaaaaaaa | aagcggccgc | c | | | 1051 |

<210> 49
 <211> 576
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(576)
 <223> n = A,T,C or G

| | |
|------------|--|
| <400> 49 | |
| tctagcgaac | cccttcgctg aaaccaccgt tcacacggga aacctggggt aggcttttgt 60 |
| cctcagtgac | acagaggatg tagtccacag ctaggtagaa atgtcagggt cccaacacta 120 |
| ctccagctgt | gactttgatg cttgggggat ggggtcgag gctattttct ctgctttaac 180 |
| agttcataga | atttaacaga taagagttag tgtctttcat gtggcctcac tctggagtta 240 |
| tgagaacata | cacacggttt acagcttttc aatatncctt tccctggcca tcaagtattt 300 |
| tgaaagtgtg | ccacctttta acctttgcgc tttatttttt tttctttttt taaagntgaa 360 |
| ggtgataatt | cttctatata tgatgaaact caatgtctac tgaaataagt gtaaccttag 420 |
| ctatncacgt | ttatntttta aaaccacgct atggagatat taccgccagt tctgtcnttt 480 |
| ngcaagattt | acagnacott ccncccccc cttttagcat tnaataaaaa natattgggg 540 |
| agcncnntna | aaaaaaaaaa aatnaanaaa agcggc 576 |

<210> 50
 <211> 587
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(587)
 <223> n = A,T,C or G

<221> CDS
 <222> (161)...(586)

| | |
|---|---|
| <400> 50 | |
| tctagcgaac | cccttcgctg gatctgatcc gagctgagac ttggggagct ctggctccgt 60 |
| ggttggtgca | gcatccccc tggtcttgtc tgagggtgcc tgtgactcga ctcttcagaa 120 |
| ctcaatgaag | tagatgactt gactacaatg tggaacatc atg aca gaa agt gtg 175 |
| | Met Thr Glu Ser Val |
| | 1 5 |
| ggt tgt acc ggg gcc gtc agc act gta aag gaa gtc tgg gaa gaa aga 223 | |
| Val Cys Thr Gly Ala Val Ser Thr Val Lys Glu Val Trp Glu Glu Arg | |
| | 10 15 20 |
| ata aag aaa cat cat gaa gat gtg aaa cga gag aag gaa ttt cag caa 271 | |
| Ile Lys Lys His His Glu Asp Val Lys Arg Glu Lys Glu Phe Gln Gln | |
| | 25 30 35 |
| aag cta gtg cgg atc tgg gaa gac cga gtg agt tta act aag ctg aaa 319 | |

1000
 900
 800
 700
 600
 500
 400
 300
 200
 100
 0

Lys Leu Val Arg Ile Trp Glu Asp Arg Val Ser Leu Thr Lys Leu Lys
 40 45 50

gag aag gtg acc agg gaa gat gga aga atc att cta agg ata gag aaa 367
 Glu Lys Val Thr Arg Glu Asp Gly Arg Ile Ile Leu Arg Ile Glu Lys
 55 60 65

gag gaa tgg aag act ctc cct tct tcc tta ctg aaa ctg aat cag cta 415
 Glu Glu Trp Lys Thr Leu Pro Ser Ser Leu Leu Lys Leu Asn Gln Leu
 70 75 80 85

cag gag tgg caa ctt cat agg acc gga ttg ttg aaa att cct gaa ttc 463
 Gln Glu Trp Gln Leu His Arg Thr Gly Leu Leu Lys Ile Pro Glu Phe
 90 95 100

att gga aga ttc cag cat ctc att ggt cta gac tta tct cgg aac aca 511
 Ile Gly Arg Phe Gln His Leu Ile Gly Leu Asp Leu Ser Arg Asn Thr
 105 110 115

att tca gag atc ccc ccg agg cat tgg act gnt cac tta gac ttc aag 559
 Ile Ser Glu Ile Pro Pro Arg His Trp Thr Xaa His Leu Asp Phe Lys
 120 125 130

gaa ctg att ctt agc tac aca aaa tca a 587
 Glu Leu Ile Leu Ser Tyr Thr Lys Ser
 135 140

<210> 51
 <211> 819
 <212> DNA
 <213> Rattus norvegicus

<220>
 <221> misc_feature
 <222> (1)...(819)
 <223> n = A,T,C or G

<400> 51
 totagcgaac cccttcgggtt ctgtttggcta cacagctgca gagccatggc tgaccgttca 60
 ctgtcagggg cacatgttac actaagcttc atgacagtga tgtaataatg ttacacattt 120
 gtctttagt tatgtattga agtttctgtc ctgttttggtg taaaaatgta tccactcttg 180
 tatatattta gacttgaaac taccacacaa atattggaac ggtttgcttt atgaagttaa 240
 aagtatcctt ccgaatggaa ctaacttgct ttgtgctcag acatatacta tgctgatgta 300
 ttttgcaata tactatctta aattaaatct ggtcactttg ttgccttttt aaaaagtgtg 360
 gtattttcaag tagagttatt ttctgaaat atatttgcaa actcaagctg ctttataatc 420
 aaggaatatt tttattgatt gaagaaaatg actgctgcaa ttcaaaagtg aacttatttt 480
 attatataga tgatttctta aaagctattt ataccatgat acaaaatcat gtagtgatcc 540
 tgggagtgctg tagttcttcc tgttaataac attcaacact gtatgctaga ggcagcaatg 600
 ccaacactga agttattttg ggtgaaaacc gtcgtttotgn cctgttttagc tggggattat 660
 taaatccata taatgtatgt gcttatgtat gctacatgtg caagttagggt gtttctcttg 720
 tgttctgctt attaaatgtc attcagattc acttcotgaa ttctaataaa gaggggaagct 780
 attggaaaaa ataaaaaaaa aaaaaaaaaa gcggccgcc 819

<210> 52
 <211> 1648
 <212> DNA

<213> Rattus norvegicus

<220>

<221> misc_feature

<222> (1)...(1648)

<223> n = A,T,C or G

<400> 52

| | | | | | | |
|------------|-------------|-------------|------------|-------------|------------|------|
| tctagcgaac | cccttcggtg | gcgcacgccg | gtaggatttg | ccacgcaa | gctggaatta | 60 |
| aagacatgca | gcagcagcgc | cctgtgggtt | tgggttttta | tttgattgct | tatttttata | 120 |
| taatttttaa | ttttttgtgt | atgaacgttt | tatctgcatt | tatgtctctg | taccacattc | 180 |
| gtgcctggtg | ctatggaggg | caaaaaagga | ttttaggccc | gagattgtag | ttatagatgg | 240 |
| ttgtgggctg | ccaatctgag | tgtgaaaaat | taaacctggg | tactctgaaa | gaccagccag | 300 |
| tgtctttaac | tatcaggcca | cctctccagc | actattttat | tttattttat | ttgtggagat | 360 |
| agggctctct | tctctgtatc | ctagtctaac | ttaaaacata | aagaatattc | tgtatcagta | 420 |
| tccttgagta | ctaggattct | aggcacctgt | cattatgcct | agatttttaa | cagtgtgtgt | 480 |
| taattctaca | taaaaatgaa | tttcattatt | acattttcac | acttgtgaag | aatatacttt | 540 |
| gatcatattc | ccttctcctg | atactttttc | ctatccttcc | tccccactcc | attagttccc | 600 |
| ttcttctttt | cagagtctac | cttctacttt | ttactttgat | ttttttcccc | ccacattctg | 660 |
| tgggtgagag | aatgcataatt | acagttgtat | ttctgaatct | ggctaggtac | attcacttaa | 720 |
| cataattaat | gatcctgggc | gagcgaaggg | gttcncctan | cnaaccctt | cggttcaata | 780 |
| ccatttcaga | gatgggcatt | tccctcaatg | aaatacacaa | gtaaacattc | cgacattgtc | 840 |
| tttaggagtg | tttgttaaaa | aaaaaaaaaa | aaaaaacan | ancccaaaa | caaaaaaaaa | 900 |
| aaagctttgc | accttgcaaa | agtggctcctg | gcgtgggtag | attgctgtta | atcctttata | 960 |
| aataacgttc | tatagagaat | atataaatat | atatataatt | atatctccta | gtccctgcct | 1020 |
| cttaagagcc | gaaaatgcat | gggtgttgta | gacattcggt | tgcactaaat | tcctctctga | 1080 |
| attttggtcg | ctgaagccgt | tcatttagca | actgtttata | ggtggttgat | gaatggttcc | 1140 |
| ttatctocat | ttcttcctat | gtagcttaag | ccgcttcctt | cacagaatct | aataatctcg | 1200 |
| tctaggocat | tagccctgcc | ctttcttaac | attcttgtat | ttgttgaatt | tggcctctct | 1260 |
| gaaagcaata | gcaactgggt | ggcccaccca | agttttaacg | cccctgattc | catctatggc | 1320 |
| atttgtacca | aatataagtt | ggatgcattt | attttagaca | caaagcttta | ttttttogac | 1380 |
| atcgtgtttc | aagaaaaaaaa | acaaatagaa | taacaataac | tatgactttg | aggccaatca | 1440 |
| tttttaggtg | tgtgtttgaa | gcatagaacg | tctnttaaac | totcaatggg | tccttcaaat | 1500 |
| gatgagttag | tatgtaacgt | aaatagcagt | ttctctctct | ctctctctct | ttttattttt | 1560 |
| tocanataga | gcactatgta | aatttagcat | atcaataata | caggaaactat | ccnccaaaaa | 1620 |
| aaaaaaaaaa | aaaaaaaaaa | gcggccgc | | | | 1648 |

<210> 53

<211> 782

<212> DNA

<213> Rattus norvegicus

<220>

<221> misc_feature

<222> (1)...(782)

<223> n = A,T,C or G

<221> CDS

<222> (277)...(426)

<400> 53

| | | | | | | |
|------------|------------|------------|-------------|---------------------|-------------|-----|
| tctagcgaac | cccttcgtag | aactaggagc | cagtgttgac | caaggctcgg | ggtggtgatac | 60 |
| cccactgcat | gctgcagcaa | ggcagtcag | tgtggagggtc | atcaatctgc | tcactgagta | 120 |
| tggggctaac | ctgaaactca | gaaactcgca | gggcaaaagt | gctcttgagc | tcgtgtctcc | 180 |
| caaaagtagt | gtggagcagg | cactcctgct | ccatgaaggt | ccacctgctc | tttctcagct | 240 |
| ctgccgcttg | tgtgtccgga | agtgcctggg | ccgcac atg | tca tca agc cat cta | | 294 |
| | | | Met | Ser Ser Ser His Leu | | |

5

gtt gga aac atg ttg cct gct gta gga cac tta ata tac aca ttc agt 390
Val Gly Asn Met Leu Pro Ala Val Gly His Leu Ile Tyr Thr Phe Ser
25 30 35

ggc tta acc cac tat cct aaa aat ctg ctt acc taa ttagaataaaa 436
Gly Leu Thr His Tyr Pro Lys Asn Leu Leu Thr *
40 45

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
| gccttcataa | atccaaatac | ttgcggtgaa | caaactcctg | gttagggttaa | tggntgccaa | 496 |
| gagataacca | gaaacctttc | aagtttttaa | ctcttggtaa | tttaaaatca | aactgaaata | 556 |
| gatggaaaat | aataatctat | ttttggataa | ttcaaggacc | cttcagtatc | tggggctggg | 616 |
| gtccgcattt | tnatactgg | atagacacac | acacaggtag | gatanggtaa | atnaactact | 676 |
| taaaagaatg | cctgggattt | aagtctcca | gatatttttt | aggtngnggt | ttcctaaaat | 736 |
| aaaattctgg | agtgccaaaa | aaaaaaaaaa | aaaaaaaaag | cgggcc | | 782 |

```
<210> 54
<211> 538
<212> DNA
<213> Rattus norvegicus
```

```
<220>
<221> misc_feature
<222> (1)...(538)
<223> n = A,T,C or G
```

<221> CDS
<222> (252) ... (464)

```

<400> 54
gtctagcgaa ccccttcggg aaacttoaac aaaggtacca gcaactacag cgccttgtcc      60
accagattt cttagccaa aagtctcaga ctgagaaacg gttctcggag aagcattcga      120
ccctggtgaa tgatgcctac aagactcttc agggccccgt gagcagagga ctatatcttc      180
taaagctcca aggaatagaa attcctgaag ggacagatta tagaacagac agtcagttcc      240
ttgtggaaat c atg gaa atc aat gaa aaa ctc gca gac gcc aaa agt gag      290
          Met Glu Ile Asn Glu Lys Leu Ala Asp Ala Lys Ser Glu
                1                5                10

```

gca gcc atg gaa gag gta gaa gcc act gtc aga gct aaa cag aaa gaa 338
Ala Ala Met Glu Glu Val Glu Ala Thr Val Arg Ala Lys Gln Lys Glu
15 20 25

ttt acg gac aat ata aac aga gct ttt gaa caa ggt gat ttt gaa aaa 386
Phe Thr Asp Asn Ile Asn Arg Ala Phe Glu Gln Gly Asp Phe Glu Lys
30 35 40 45

gcc aag gaa ctt ctt aca aaa atg aga tac ttt tca aac ata gaa gaa 434
Ala Lys Glu Leu Leu Thr Lys Met Arg Tyr Phe Ser Asn Ile Glu Glu
50 55 60

aag atc aag tta agc aag aac cct ctc tag ttgctaactt aaaggttttaa 484
Lys Ile Lys Leu Ser Lys Asn Pro Leu *

aaataaaactt tgtattttctt cannnnnnnan nnnnannntn nnnnagcggc cgcc

538

<210> 55

<211> 805

<212> DNA

<213> Rattus norvegicus

<400> 55

| | | | | | | |
|-------------|------------|------------|------------|-------------|------------|-----|
| tctagcgaac | cccttcgcga | aggggttcgc | ttcttacct | gtggagaaag | gggcaggagg | 60 |
| aacctcctgt | gttaggagga | agctggagct | taccactgtg | agaggacaga | tgtggactga | 120 |
| gaattttctt | agtgtcagt | ggcacttccc | aaggactccc | ctccccttgt | gctctgtgcg | 180 |
| gttttttagga | cagctaagat | gactgccacc | tgttgtggca | ggcccgat | gtcttgttct | 240 |
| ccccttactg | taccccgata | taatctctgt | tgatcaacag | gactacccca | agaatccaca | 300 |
| tgttctcccc | cgtaaccagg | cagctgtctg | gttcatgcct | tcttcccttc | aaacccaacc | 360 |
| cagcgcctt | gttagtgaag | aggtggtcca | tggactgatg | acaagttatt | agcactggat | 420 |
| gctgtttcca | tagtgacaag | cctatacctc | ttcccacct | ttagtgcgca | gtgggctgct | 480 |
| gcttcagtat | cctcccagct | cagttttatt | agatcaaagc | tgcccttggg | caccatgttg | 540 |
| gccacctcaa | tcaccagcca | aaatggtcgc | tttgtccacc | agaggtcaag | ccatctttct | 600 |
| ggcgtctgtg | ttcccagctc | cttctaggga | acaggaagtt | gatattgcca | tgggggaggt | 660 |
| ggcggggtgt | ggcgtcacc | tcaatagttt | tactgtaaaa | gggaaatttg | aacaagaaca | 720 |
| acaacaaaaa | aaaaaaaaaa | acaaagaaaa | aaataaaaaa | ctttaaaaagt | tgaaaaaaaa | 780 |
| aaaaaaaaaa | aaaaaaagcg | gccgc | | | | 805 |

<210> 56

<211> 1407

<212> DNA

<213> Rattus norvegicus

<220>

<221> misc_feature

<222> (1)...(1407)

<223> n = A,T,C or G

<221> CDS

<222> (90)...(431)

<400> 56

| | | | | | | |
|-------------|-------------|-------------|-------------|---------------------|------------|-----|
| totagcgaac | cccttcgctg | ggacccgcaa | ctaccaactg | ccgcctggat | cctaggtgag | 60 |
| ctgtgggctc | tgacagcgct | gtggctaac | atg gca ccc | aaa aag aag act ctc | | 113 |
| | | | Met Ala Pro | Lys Lys Lys Thr Leu | | |
| | | | 1 | 5 | | |
| aag aag aac | aaa ccc gag | atc aat gag | atg acc atc | atc atc gtg | gaa gac | 161 |
| Lys Lys Asn | Lys Pro Glu | Ile Asn Glu | Met Thr Ile | Ile Val Glu | Asp | |
| 10 | 15 | 20 | | | | |
| agc ccc cta | aac aag ctg | aat gct cta | aat ggg ctc | ctg ggg gga | gaa | 209 |
| Ser Pro Leu | Asn Lys Leu | Asn Ala Leu | Asn Gly Leu | Leu Gly Gly | Glu | |
| 25 | 30 | 35 | 40 | | | |
| aac agc ctt | agc tgt gtt | tct ttc gaa | cta aca gac | act tct tat | ggg | 257 |
| Asn Ser Leu | Ser Cys Val | Ser Phe Glu | Leu Thr Asp | Thr Ser Tyr | Gly | |
| 45 | 50 | 55 | | | | |
| ccc aac ctc | ctg gaa ggt | tta agt aaa | atg cgt caa | gag agc ttt | cta | 305 |

Pro Asn Leu Leu Glu Gly Leu Ser Lys Met Arg Gln Glu Ser Phe Leu
60 65 70

tgt gac ttg gtc atc ggt cca aaa cca agt cct ttg atg tcc ata agt 353
Cys Asp Leu Val Ile Gly Pro Lys Pro Ser Pro Leu Met Ser Ile Ser
75 80 85

caa gtg atg gct tcc tgc agc gag tct tct ata ata tcc tta aaa cga 401
Gln Val Met Ala Ser Cys Ser Glu Ser Ser Ile Ile Ser Leu Lys Arg
90 95 100

tcc atc gac aaa aag ggt aga cct caa tga tctgncct ttagggctac 451
Ser Ile Asp Lys Lys Gly Arg Pro Gln *
105 110

caccgtgata gcatatgcat acacnggaaa gctgcccctt ctttatacac aataaggaag 511
catcatttct gctgctgtgt acctccagat ccacactctt gtgaagatgt gcagcgactt 571
tctgatccga gagatcagtg ttgagaactg catgtatggt gttaacatgg ctgaaacata 631
ctgcttgaaa aatgcgaaag caacggccca gaaatttctc cgggataact tcattgaatt 691
tgccgactcc gaacaattta tgaagctgac gtttgaacag attaatgagc ttctcataga 751
tgatgacttg cagttgcctt ctgagctggt agcattccag attgcaatga aatggataga 811
attcaaccaa aagagagtga agcacgctgc ggatctttta agcaatattc gctttggtac 871
catctctgca caagacctgg tcaattacgt tcaaaccgta ccgagaatga tgcaagacgc 931
tgattgtcat aaactgcttg tggatgctat gaactaccac ttactacctt atcatcaaaa 991
cacgttgcaa tctaggcgga caagaattag aggcggctgc cgggttctga tcaactgtcg 1051
gggacgcctt ggctgactg agaagtcctt tagtagagac gtttatatag agaccctgaa 1111
aatggatgga gcaagcttac agaaatgcca gccaaagatt tcaatcagtg tgtggctgtg 1171
atggatggat tcttttatgt agcaggtggt gaggaccaga atgatgcgag aaaccaagcc 1231
aagcatgcag tcagcaattt ctgcaggtag cgatccccgc ttcaacacgt ggatccacct 1291
gggcagcatg aaccagaagc gcacgcactt cagcctgagc gtgttcaacg ggctcctgta 1351
cgccggtggn gggcnccagt gnganggata tctgcagaat tcggctagcc gaattc 1407

<210> 57
<211> 2004
<212> DNA
<213> Rattus norvegicus

<220>
<221> misc_feature
<222> (1)...(2004)
<223> n = A,T,C or G

<221> CDS
<222> (88)...(432)

<400> 57
tctagcgaac cccttcggac actgccagca tagacagcag cccttgcctac tgtcccacca 60
ctgtacccca gagccccgac tagcagt atg ccg gga gcg cca ggg cct ggg cct 114
Met Pro Gly Ala Pro Gly Pro Gly Pro
1 5

gag gtg gct gca gcc ttt gag gaa cgg ttg agt cag gca cta cag gaa 162
Glu Val Ala Ala Ala Phe Glu Glu Arg Leu Ser Gln Ala Leu Gln Glu
10 15 20 25

ctg cag gca gtg gct gaa gca ggc cgg tca gcg gtg acc cag gca gct 210
Leu Gln Ala Val Ala Glu Ala Gly Arg Ser Ala Val Thr Gln Ala Ala

| | 30 | 35 | 40 | |
|---|-----|----|-----|-----|
| gat gca gcc cta gcc act gta gag cca gtg get cag gca tct gaa gag | | | | 258 |
| Asp Ala Ala Leu Ala Thr Val Glu Pro Val Ala Gln Ala Ser Glu Glu | | | | |
| | 45 | 50 | 55 | |
| ctt cgg gcc gag aca gca gcc ctg agc cgg cgg ctg gat gcc ctg acc | | | | 306 |
| Leu Arg Ala Glu Thr Ala Ala Leu Ser Arg Arg Leu Asp Ala Leu Thr | | | | |
| | 60 | 65 | 70 | |
| agg cag gtg gag gtg ctg agc cta cgg ctg ggt gtt cca ctc gtg ccg | | | | 354 |
| Arg Gln Val Glu Val Leu Ser Leu Arg Leu Gly Val Pro Leu Val Pro | | | | |
| | 75 | 80 | 85 | |
| gac ctg gag tcc gag cta gag ccc agc gag ctg ttg ctg gct gct gcc | | | | 402 |
| Asp Leu Glu Ser Glu Leu Glu Pro Ser Glu Leu Leu Leu Ala Ala Ala | | | | |
| | 90 | 95 | 100 | 105 |
| gac cct gag gcc ctc ttc cag gca agc tga ggatgctggg acccccgtgg | | | | 452 |
| Asp Pro Glu Ala Leu Phe Gln Ala Ser * | | | | |
| | 110 | | | |

| | | | | | | |
|-------------|-------------|------------|-------------|-------------|-------------|------|
| ccacccgcct | gccttttagca | cccgccgcag | ctctttctgcg | ggccccctctc | gaagcagcag | 512 |
| tctcatggag | ccgatccag | cagagccccc | ctctgccaca | gtggaagcag | ctaattggaac | 572 |
| agagcagact | ctggacaaag | tgaacaaagg | cccagagggg | cggagccccc | tgagtgcaga | 632 |
| ggagctgatg | gccattgagg | acgaaggaat | cctggacaag | atgctggacc | aggctacgaa | 692 |
| ctttgaagag | cggaaagctca | tccgggctgc | gctccgtgag | ctccgacaaa | gaaagagaga | 752 |
| ccagagggac | aaggaacgag | aacggcggct | acgagaggca | cgggcccggc | caggcgagag | 812 |
| ccgaagcaat | atggctacta | cagagaccac | caccaggcac | aagccagagg | gcggtgatg | 872 |
| gctcggcggt | cagcacagtt | accaaaactg | agcgggtcgt | ccactccaat | gacggcacgc | 932 |
| agactgcgcg | caccaccaca | gtggagtcca | gtttcgtgag | gcgctcggag | aatggcagca | 992 |
| gcaagcaagc | agcagcacca | cggtcctaac | caagaccttt | tcctcttcct | cttcctcatc | 1052 |
| caaaaaaatg | ggcagtatct | tgcaccgaga | ggaccaaac | agctcacgtt | ctggcagcct | 1112 |
| ggcgccctc | gaaaaacgcc | aggcagagaa | gaagaaagag | ctcatgaagg | cacagagtct | 1172 |
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| tacatccagg | agttctaccg | ctgtctggtc | cagaaggggc | tggtaaaaac | caaaaagtcc | 1652 |
| taacccctgc | ttggggcccc | acggatgctg | gtggactgtg | tacccttggt | ggaggtggag | 1712 |
| gacatgatga | tcatgggcaa | aaagccagac | cctaagtgcg | tcttcacctc | cgtgcaatcg | 1772 |
| ctgtacaacc | acctgcggcg | ccatgagctg | cgctgcgcg | gcaagaatgt | ctagccactg | 1832 |
| ctcacaccgc | ctgcgctgca | ggctgctgtc | ccacgcccc | aacaccggnc | cctncagtgn | 1892 |
| gcctgccact | gntgcccgtg | tgtcgaaaca | cctntcccct | tgtcacacgc | agnngnttga | 1952 |
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1 5 10

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Asp Ile Gly His Arg Leu Asp Tyr Gly Gly Met Gly Gln Glu Val Gln
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gtt gag cac atc aag gca tat gtc acc cgg tcc cct gtg gat gca ggc 209
Val Glu His Ile Lys Ala Tyr Val Thr Arg Ser Pro Val Asp Ala Gly
30 35 40

aaa gct gtg att gtt gtc cag gat ata ttt ggc tgg cag ctg tcc aac 257
Lys Ala Val Ile Val Val Gln Asp Ile Phe Gly Trp Gln Leu Ser Asn
45 50 55

acc agg tat atg gct gac atg att gct gga aat gga tac aca act att 305
Thr Arg Tyr Met Ala Asp Met Ile Ala Gly Asn Gly Tyr Thr Thr Ile
60 65 70

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Ala Gln Thr Ser Leu Trp Val Lys Ser His Gly Thr Arg Leu Val Ile
75 80 85 90

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Gly Pro Pro Ser Leu Ser Gly *
95

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35 40 45
Gln Asp Ile Phe Gly Trp Gln Leu Ser Asn Thr Arg Tyr Met Ala Asp
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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Arg | Pro | Trp | Lys | Ile | Val | Cys | Gly | Asp | Ser | Tyr | Arg | Lys | Gln | Thr |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Gly | Arg | Leu | Lys | Gln | Thr | Arg | Ser | Lys | Val | Arg | Cys | Arg | Cys | His | Gly |
| | | 35 | | | | | 40 | | | | 45 | | | | |
| Gln | Thr | Leu | Gly | Glu | Ala | Trp | Ala | Thr | Leu | Val | Phe | Met | Leu | Glu | Arg |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Arg | Arg | Glu | Leu | Leu | Gly | Leu | Thr | Ser | Glu | Phe | Phe | Gln | Ser | Ala | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Phe | Ala | Ile | Lys | Ile | Asp | Gln | Ala | Glu | Asp | Phe | Leu | Gln | Asn | Pro |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| His | Glu | Phe | Glu | Ser | Ala | Glu | Ala | Leu | Gln | Ser | Leu | Leu | Leu | Leu | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Arg | His | Ala | Lys | Glu | Leu | Leu | Glu | Arg | Ser | Leu | Val | Leu | Leu | Asn |
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| Lys | Ser | Gln | Gln | Leu | Thr | Asp | Phe | Ile | Glu | Lys | Phe | Lys | Cys | Asp | Gly |
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| Ser | Pro | Val | Asn | Ser | Glu | Leu | Ile | Gln | Gly | Ala | Gln | Ser | Ser | Cys | Leu |
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| Lys | Ile | Asp | Ser | Leu | Leu | Glu | Leu | Leu | Gln | Asp | Arg | Arg | Arg | Gln | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Lys | His | Leu | Gln | Gln | Gln | Arg | Gln | Glu | Leu | Ser | Gln | Val | Leu | Gln |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Leu | Cys | Leu | Trp | Asp | Gln | Gln | Glu | Ser | Gln | Val | Ser | Cys | Trp | Phe | Gln |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Thr | Ile | Arg | Asp | Leu | Gln | Glu | Gln | Ser | Leu | Gly | Ser | Ser | Leu | Ser |
| | | 210 | | | | 215 | | | | | 220 | | | | |
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| Val | Trp | Glu | Glu | Arg | Ile | Lys | Lys | His | His | Glu | Asp | Val | Lys | Arg | Glu |

| | | | | | | | | | | | | | | | |
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| | 20 | | 25 | | 30 | | | | | | | | | | |
| Lys | Glu | Phe | Gln | Gln | Lys | Leu | Val | Arg | Ile | Trp | Glu | Asp | Arg | Val | Ser |
| | 35 | | | | | 40 | | | | | 45 | | | | |
| Leu | Thr | Lys | Leu | Lys | Glu | Lys | Val | Thr | Arg | Glu | Asp | Gly | Arg | Ile | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Arg | Ile | Glu | Lys | Glu | Glu | Trp | Lys | Thr | Leu | Pro | Ser | Ser | Leu | Leu |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Lys | Leu | Asn | Gln | Leu | Gln | Glu | Trp | Gln | Leu | His | Arg | Thr | Gly | Leu | Leu |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Lys | Ile | Pro | Glu | Phe | Ile | Gly | Arg | Phe | Gln | His | Leu | Ile | Gly | Leu | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Ser | Arg | Asn | Thr | Ile | Ser | Glu | Ile | Pro | Pro | Arg | His | Trp | Thr | Xaa |
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| His | Leu | Asp | Phe | Lys | Glu | Leu | Ile | Leu | Ser | Tyr | Thr | Lys | Ser | | |
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 Thr

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|-----|-----|-----|-----|-----|-----|
| | 20 | | 25 | | 30 |
| Leu | Asn | Gly | Leu | Leu | Gly |
| | 35 | | 40 | | 45 |
| Glu | Leu | Thr | Asp | Thr | Ser |
| | 50 | | 55 | | 60 |
| Lys | Met | Arg | Gln | Glu | Ser |
| | 65 | | 70 | | 75 |
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Gln

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| Met | Pro | Gly | Ala | Pro | Gly | Pro | Gly | Pro | Glu | Val | Ala | Ala | Ala | Phe | Glu |
| 1 | | | 5 | | | | | 10 | | | | | | 15 | |
| Glu | Arg | Leu | Ser | Gln | Ala | Leu | Gln | Glu | Leu | Gln | Ala | Val | Ala | Glu | Ala |
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| Gly | Arg | Ser | Ala | Val | Thr | Gln | Ala | Ala | Asp | Ala | Ala | Leu | Ala | Thr | Val |
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| Glu | Pro | Val | Ala | Gln | Ala | Ser | Glu | Glu | Leu | Arg | Ala | Glu | Thr | Ala | Ala |
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| Leu | Ser | Arg | Arg | Leu | Asp | Ala | Leu | Thr | Arg | Gln | Val | Glu | Val | Leu | Ser |
| | 65 | | | 70 | | | | | 75 | | | | | 80 | |
| Leu | Arg | Leu | Gly | Val | Pro | Leu | Val | Pro | Asp | Leu | Glu | Ser | Glu | Leu | Glu |
| | | | 85 | | | | 90 | | | | | | 95 | | |
| Pro | Ser | Glu | Leu | Leu | Leu | Ala | Ala | Ala | Asp | Pro | Glu | Ala | Leu | Phe | Gln |
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25

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20

<211> 18

<213> Artificial Sequence

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18

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|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 | 2101 | 2102 | 2103 | 2104 | 2105 | 2106 | 2107 | 2108 | 2109 | 2110 | 2111 | 2112 | 2113 | 2114 | 2115 | 2116 | 2117 | 2118 | 2119 | 2120 | 2121 | 2122 | 2123 | 2124 | 2125 | 2126 | 2127 | 2128 | 2129 | 2130 | 2131 | 2132 | 2133 | 2134 | 2135 | 2136 | 2137 | 2138 | 2139 | 2140 | 2141 | 2142 | 2143 | 2144 | 2145 | 2146 | 2147 | 2148 | 2149 | 2150 | 2151 | 2152 | 2153 | 2154 | 2155 | 2156 | 2157 | 2158 | 2159 | 2160 | 2161 | 2162 | 2163 | 2164 | 2165 | 2166 | 2167 | 2168 | 2169 | 2170 | 2171 | 2172 | 2173 | 2174 | 2175 | 2176 | 2177 | 2178 | 2179 | 2180 | 2181 | 2182 | 2183 | 2184 | 2185 | 2186 | 2187 | 2188 | 2189 | 2190 | 2191 | 2192 | 2193 | 2194 | 2195 | 2196 | 2197 | 2198 | 2199 | 2200 | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349</ |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|